

Situational Variability of ADHD, ODD, and CD: Psychometric Properties of the DBD Interview and Rating Scale

Greta M. Masetti, William E. Pelham, Jr., Anil Chacko, Kathryn Walker, Frances Arnold, Jenna Keenan, Erika Coles, Brian T. Wymbs, Michelle Swanger, Jessica A. Robb, Gregory A. Fabiano, Adia N. Onyango, Elizabeth M. Gnagy, and Lisa Burrows-MacLean
University at Buffalo, SUNY

For more information, contact:
gmm23@buffalo.edu

INTRODUCTION

- ADHD and the Disruptive Behavior Disorders (DBDs; ODD and CD) are the most common reasons for referrals to mental health clinics (Lahey et al., 1992). Methods for obtaining accurate assessments of children's presenting problems and functioning are important for both clinical and research settings. While DSM-IV diagnostic criteria for ADHD and DBDs are fairly specific, different approaches and different informants may provide divergent information regarding children's problem behavior.
- A multimethod assessment battery is usually employed in the evaluation of ADHD, ODD, and CDs, including parent and teacher reports, behavior rating scales, interviews, and clinic-based testing (Crystal et al., 2002; Hale et al., 2001; Piacentini, Cohen, & Cohen, 1992). Behavior rating scales and diagnostic interviews completed by parents and teachers are among the most widely used techniques to assess child psychopathology (e.g., Collett, Ohan, & Myers, 2003; DuPaul, 1991). In most cases, respondents indicate the frequency and/or severity of various problem behaviors based on their observations across situations within the home or school. Although these ratings provide important information regarding overall symptomatic frequency, it is important to explore and document variation in problem behavior occurrence and severity across situations within home or school settings. Knowledge of such variability could be used to assess the pervasiveness of problem behaviors across settings and for treatment planning purposes by delineating situations where problem behaviors occur.
- The current project investigated the psychometric properties of the Disruptive Behavior Disorders Interview and Rating Scale (DBD Interview and DBD Rating Scale) completed by parents and teachers for a sample of children diagnosed with ADHD. Furthermore, cross-situational variability in children's behavior was explored by obtaining information from both parents and teachers regarding symptoms of ADHD, ODD, and CD. These instruments were developed to assess symptoms, severity, and cross-situational pervasiveness of ADHD, ODD, and CD. Comparisons with a widely used objective criterion measure (DISC) were conducted in order to evaluate the relationships among methods and informants.

PARTICIPANTS

Participants were 68 children referred for treatment for ADHD evaluated in two cohorts during subsequent years. Data was collected as part of the intake evaluation to determine eligibility for a Summer Treatment Program (STP) study evaluating effects of different doses of medication versus behavior modification on 5-12 year-old children with ADHD. The ethnic background of the sample was as follows: 79% Caucasian, 12% African-American, and 9% other. 84% of the children were boys. The mean age of the sample was 9.13 years. Eligibility for the study involved conducting a multi-method comprehensive assessment of children's presenting problems and functioning. ADHD diagnosis was established by consensus of a clinical team using data available from parent reports, parent interviews, and teacher reports. Children were excluded from the study if they did not meet criteria for ADHD or if they had an IQ below 80.

MEASURES

Diagnostic Interview Schedule for Children, DSM-IV Edition (DISC IV; Shaffer et al., 1993). The computer-administered version of the DISC was used for the present study. The modules employed were those for ADHD, ODD, and CD. Primary caregivers were administered the DISC to establish diagnostic status.

Disruptive Behavior Disorders Interview (DBD Interview; Pelham et al., 1992). The DBD Interview is a clinician-administered semi-structured interview addressing DSM-IV symptoms of ADHD, ODD, and CD across different situations: at home, at school, and in other settings. Parents are asked to indicate whether problem behaviors occur in each situation and, if so, to rate the severity from *mild* (1) to *severe* (3). Clinicians then give each symptom an overall rating based on primary caregivers' reports of severity within each setting. Symptoms are counted as present if children receive an overall rating of 2 or 3.

Disruptive Behavior Disorders Rating Scale (DBD-Rating Scale; Pelham et al., 1992). The DBD Rating Scale is comprised of 45 items representing symptoms of ADHD, ODD, and CD. Respondents are asked to indicate whether problem behaviors occur in these situations and, if so, to rate the severity. Summary scores generated by the DBD Rating Scale include number of symptoms and a severity score (sum of all scores). Primary caregivers and teachers completed the DBD Rating Scale. Parents were asked to complete the DBD Rating Scale again three months after the original administration.

INTERNAL CONSISTENCY AND RELIABILITY

Table 1. Coefficient alphas for symptom counts for diagnostic categories of parent and teacher DBD Rating Scales and the Parent Interview.

Diagnostic Category	Alphas			Test-Retest Reliability
	Parent DBD	Teacher DBD	Parent Interview	
ADHD-Inattentive	.82	.92	.86	.49*
ADHD-Hyperactive/Impulsive	.85	.91	.87	.61*
ADHD Total	.89	.92	.91	.53*
Oppositional Defiant Disorder	.87	.87	.87	.52*
Conduct Disorder	.72	.70	.70	.57*

* $p < .05$

INTRRATER AGREEMENT

Table 2. Correlations between symptom counts by diagnostic category for the teacher DBD Rating Scale and the parent DBD Rating Scale, the DBD Interview, and the DISC.

Teacher DBD	Parent DBD	Parent Interview	Parent DISC
Diagnostic Category			
ADHD-Inattentive	.26*	.05	.24*
ADHD-Hyperactive/Impulsive	.26*	.36*	.37*
ADHD Total	.14	.07	.25*
Oppositional Defiant Disorder	.08	.20	.12
Conduct Disorder	-.08	.05	.28*

* $p < .05$

RELATIONSHIPS AMONG CRITERION MEASURES

Table 3. Correlations between reports of symptom counts by diagnostic category for the parent DBD Rating Scale, the DBD Interview, and the DISC.

Diagnostic Category	Parent Interview	Parent DISC	Parent Interview
	Parent DBD	Parent DBD	Parent DISC
ADHD-Inattentive	.23	.38*	-.06
ADHD-Hyperactive/Impulsive	.65*	.62*	.58*
ADHD Total	.44*	.55*	.32*
Oppositional Defiant Disorder	.51*	.47*	.37*
Conduct Disorder	.50*	.20	.26*

* $p < .05$

DISCRIMINANT VALIDITY

Table 4. Results of Chi Square analyses for diagnostic categories for the teacher DBD Rating Scale and the parent DBD Rating Scale, DBD Interview, and DISC.

Measures	Chi Square		
	ADHD	ODD	CD
Parent DBD & Parent DISC	7.70*	11.07*	2.47
Parent Interview & Parent DISC	1.00	7.38*	.16
Parent DBD & Parent Interview	.19	13.64*	19.83*
Parent DBD & Teacher DBD	.69	.72	3.41
Parent DISC & Teacher DBD	7.70*	1.99	.64
Parent Interview & Teacher DBD	.30	.18	7.26*

* $p < .05$

PROCEDURE

- Parents completed an application packet that included the DBD Rating Scale and a clinical interview to establish DSM-IV diagnosis of ADHD, any subtype. The parent interview included a standard clinical intake interview, the DBD Interview, and the computer-administered version of the DISC. Children's classroom teachers were asked to complete a packet containing the DBD Rating Scale. Parents and teachers were asked to rate children's behavior while not medicated.
- Parents were asked to complete the DBD Rating Scale again at the end of the STP study. Parents were asked to rate their child's behavior when not medicated and while no behavioral treatments were in place.
- Following completion of the assessment interview, a multidisciplinary clinical team determined whether each child met criteria for ADHD, and whether each child met criteria for the study. ADHD diagnosis was established through cumulative criteria, in that if a symptom was rated by an informant (parent or teacher) on any measure (DBD Interview, DISC, or Rating Scale), it was counted as present.

SUMMARY OF RESULTS

- Internal Consistency and Reliability:**
 - Coefficient alphas were calculated to determine the internal consistency of symptom counts for each diagnostic category (ADHD-I, ADHD-H/I, ODD, or CD) of the DBD Rating Scale and the DBD Interview (Table 1). Correlation coefficients were calculated between symptom counts for the parent DBD Rating Scale completed in the beginning and at the end of the STP study. Parent and teacher ratings were internally consistent and moderately stable over time.
- Intrater Agreement:**
 - Correlation coefficients for symptom counts between the Teacher DBD Rating Scale and the Parent DBD Rating Scale, the Parent Interview, and the DISC are presented in Table 2. Absolute values of obtained correlations ranged from .05 to .36, with 7 of 15 correlations achieving statistical significance. Parent and teacher ratings were only modestly correlated, with Hyperactive/Impulsive symptoms showing the strongest pattern of relationships, and Conduct Disorder symptoms the weakest.
- Relationships Among Criterion Measures:**
 - Correlation coefficients for symptom counts between all measures were calculated (Table 3). Absolute values of obtained correlations ranged from .06 to .65. The strongest relationships were for Hyperactive/Impulsive symptoms, which were found to share 38% of the variance. The weakest relationships were found for Inattention symptoms, sharing only 4.9% of the variance.
- Discriminant Validity:**
 - Chi square analyses were conducted in order to evaluate how each measure classified children meeting criteria for ADHD (any subtype), ODD, and CD (Table 4). The parent and teacher DBD Rating Scales had the most consistent classification patterns.

DISCUSSION

- Although the DBD Rating Scale showed only moderate test-retest reliability, this may have been due to treatment effects, as parents rated children's behavior at the end of the STP study. Parents were asked to rate their children's behavior during no treatment conditions, but it is possible that treatment effects influenced parents' ratings of children's behavior.
- Overall, different measures for assessing ADHD, ODD, and CD symptomatology showed differential patterns of diagnostic classification, indicating only moderate consistency across methods and measures.
- Only modest correlations were found between parent and teacher reports, suggesting a high degree of cross-situational variability in children's presentations of problems. While parents were asked to report on school functioning in the DBD Interview and the DISC, these considerations did not increase the relationship between these measures and teachers' reports. These findings highlight the importance of obtaining direct information from different informants across settings and environments (Brewis, Meyer, & Schmidt, 2002; Crystal et al., 2002). This is particularly important for ADHD, which includes cross-situational impairment as a diagnostic criterion.
- Results from the present study highlight the importance of multimethod approaches for determining diagnosis (Hale et al., 2001), including obtaining information regarding children's functioning across different contexts, in different environments, from different informants, and by using different methods (Mannuzza, Klein, & Moulton, 2002).