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The Nisonger CBRF: A Child Behavior Rating Form for Children With Developmental Disabilities

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Although the rate of behavior and emotional problems of children with mental retardation is considerably higher than the rate among typically developing children, there is a shortage of tools for assessing persons with mental retardation. The Child Behavior Rating Form (CBRF) was modified by altering instructions and adding new items describing behavior problems known to occur in children with mental retardation. The adapted scale was named the Nisonger CBRF. Three hundred sixty-nine children being assessed at a University Affiliated Program for MR/DD were rated on the CBRF by their parents and teachers. Independent factor analyses of parent and teacher ratings produced two Social Competence subscales and six Problem Behavior subscales. These results were largely consistent across rater types and similar to prior findings with the CBRF. Internal consistency was generally high, parent-teacher agreement was satisfactory, and subscales from the Nisonger CBRF correlated highly with analogous subscales from the Aberrant Behavior Checklist. The Nisonger CBRF appears to be a promising new tool for assessing behavioral and emotional problems in children with mental retardation; however, further psychometric work is warranted.

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It is widely accepted today that the rate of behavior and emotional disorders in children with mental retardation is much higher than that among children in the general population (Einfeld & Aman, 1995; Stark, Menolascino, Albarelli, & Gray, 1988). Aman (1991a) conducted a comprehensive review of instruments for assessing such disorders in people with mental retardation. Although there were areas of strength in this literature, Aman noted a relative lack of suitable assessment tools for evaluating children with mental retardation.

Although there are many good standardized instruments for assessing behavior problems in children of average ability (see Aman, 1993; Orvaschel, Scholomskas, & Weissman, 1980), it may not be satisfactory simply to use them unchanged for assessing children with mental retardation. This is because the structure and/or expression of psychopathology may change with cognitive handicap (Aman, 1991a; Einfeld & Aman, 1995). Indeed, factor analytic studies of instruments developed for children of normal ability have produced quite different factor structures when used to rate children with mental retardation (e.g., Cohen & Hynd, 1986; Matson, Epstein, & Cullinan, 1984).

For these reasons, we decided to adapt one of the best existing instruments for evaluating children with developmental disabilities. After reviewing available rating instruments both within the developmental disabilities field and in general child clinical practice, we chose the Child Behavior Rating Form (CBRF; Edelbrock, 1985) for our purposes. This paper describes the adaptation of this tool for assessing children with mental retardation.

METHOD

Participants

Participants were 369 outpatients referred for a comprehensive evaluation at the Nisonger Center for Mental Retardation and Developmental Disabilities. The sample comprised all consecutive cases, within the designated age range, seen between 1988 and 1994 at the Nisonger Center. IQ data are not available for the entire group, but IQs of children referred to the Center usually range from borderline through profound mental retardation, with the majority of clients falling within the mild range (i.e., IQ 55 to 70). A total of 326 children were rated on the Nisonger CBRF (see below) by their parents (usually the mother). There were 114 girls (35.0% of the sample) and 212 (65.0%) boys, whose age ranged from 3 to 16 years ($M = 6.71$ years; $SD = 3.37$; median = 6 years). The distribution of ages for this sample and administrative assignment (State of Ohio) to different classroom types are shown in Table 1. Although the table shows 25% of the sample being assigned to "regular" classrooms, it would not be correct to assume that this proportion of subjects had borderline or normal IQs. Spot checks of 20 randomly selected files of subjects in regular classes revealed that 15 (75%) had an IQ assessment and/or appraisal of functional level. Of the 15 subjects, 11 (73%) were in the mental retardation range

(i.e., $IQ < 70$). Hence it appears that the large majority of the sample had IQs falling into a range ordinarily associated with mental retardation.

In addition, 260 children were rated by their teachers; 80 (30.8%) were girls, and 180 (69.2%) were boys. Their mean age was 7.26 years ($SD = 3.39$, median = 6 years). The age and class distribution are shown in Table 1. One hundred eighty-nine children were rated both by their parents and teachers.

Instruments

The Nisonger CBRF. Our goal was to locate or design a rating instrument that met the following criteria: (a) brief enough that it could be completed within 7 or 8 minutes, (b) capable of being completed by parents and teachers, (c) applicable

TABLE 1
Age and Class Distributions for Parent and Teacher Ratings

Variable	Frequency	Percentage
Parent ratings		
Age		
3	46	14.1
4	57	17.5
5	59	18.1
6	31	9.5
7	22	6.7
8	32	9.8
9	11	3.4
10–12	42	12.9
13–16	26	8.0
Teacher ratings		
Age		
3	20	7.7
4	43	16.5
5	46	17.7
6	23	8.8
7	25	9.6
8	24	9.2
9	12	4.6
10–12	42	16.2
13–16	25	9.6
Type of Classroom ^a		
Regular	65	25.0
Developmental handicap	50	19.2
Multihandicapped	38	14.6
Severe behavior handicap	99	38.1
Hearing impaired	2	.8
Learning disability	1	.4
Orthopedic handicap	4	1.5
Visual impairment	1	.4

^aDesignation for educational placements in Ohio.

to a broad age range of children, and (d) relevant to a wide range of childhood problems, including stereotypic behavior and self-injury because of their prominence in mental retardation. After examining all of the prominent rating scales in the clinical child assessment field, we decided to use an adaptation of the Child Behavior Rating Form (CBRF; Edelbrock, 1985). The CBRF was created from case records and clinical progress notes from psychiatric inpatient children and adolescents to generate items. These items were refined based on input from clinical staff members. (Craig Edelbrock, Ph.D., and Michael Rancurello, M.D., developed the item pool and conducted a preliminary factor analysis [unpublished] that served as a forerunner for later work.) The CBRF has 10 Social Competence items that describe adaptive behavior or prosocial behavior, and an additional 55 items describing a multitude of acting-out and internalizing behavior problems (Edelbrock, 1985). The Social Competence items are rated on a 4-point scale from *not true* to *completely or always true*, and Problem Behavior items are rated from 0 (*did not occur or was not a problem*) to 3 (*an extremely severe problem*).

Kolko (1988) used the CBRF to rate 200 children who were inpatients in a child psychiatric unit. Principal-components factor analysis derived two Social Competence factors — (a) Compliance/Self Control and (b) Positive/Adaptive — and five problem-behavior factors — (a) Antisocial Behavior/Defiance, (b) Hyperactivity/Inattention, (c) Withdrawal/Depression, (d) Negative Self-image/Self-injury, and (e) Anxiety.

Prior to collecting any data with the CBRF, we set out to adapt it to our needs. A group comprising three psychologists, two social workers, and a speech therapist (all having extensive experience working with people with mental retardation) made the following modifications to the CBRF. First, instructions were altered to take both extent to which items are a problem and rate of occurrence into account. Second, four items were rewritten to make them more concrete and specific. Third, 16 items were added to the instrument: (a) five of these were intended to reflect different forms of self-injury; (b) seven items described different aspects of what we regarded as stereotypic behavior; (c) the remaining four items included two describing sensitive or shy behavior, one describing indecision, and a new item was created by splitting a broad “argues” item into two separate items relating to arguing with adults and with children. We named the altered instrument the Nisonger CBRF, a designation that will be used throughout the remainder of this paper. Further information on the Nisonger CBRF appears in a companion paper that provides norms for the Nisonger CBRF and data on gender and age effects (Tassé, Aman, Hammer, & Rojahn, 1996, pp. 59–75 in this issue). The scale itself is available on request from the authors.

Aberrant Behavior Checklist (ABC). The ABC is a behavior rating scale that was originally developed to assess treatment effects in people with mental retardation (Aman, Singh, Stewart, & Field, 1985a). The ABC was derived by factor analysis, and its 58 items resolve onto five subscales, as follows: (I) Irritability,

Agitation, Crying, (II) Lethargy, Social Withdrawal, (III) Stereotypic Behavior, (IV) Hyperactivity/ Noncompliance, and (V) Inappropriate Speech. The ABC has adequate-to-good psychometric characteristics (Aman, Singh, Stewart, & Field, 1985b), and it has been used extensively to study problem behavior in children and adults with mental retardation (Aman, 1995). The ABC was used in this study as an aid for assessing concurrent validity.

Procedure

Copies of the Nisonger CBRF were sent to the children's parents and teachers, with the request that they rate the children's behavior over the previous month. The 71 Problem Behavior items were rated on a four-point scale extending from 0 (*behavior did not occur or was not a problem*) to 3 (*occurred a lot or was a severe problem*). The face sheet of the Nisonger CBRF also requested data on the child's age, type of school placement, and duration of familiarity with the child (teachers only), and an open-ended question asked if there were any special circumstances that might have affected the child's recent behavior or interfered with the rater's ability to complete the ratings. The ABC was also sent to parents and teachers of the first 62 entrants into the study.

RESULTS

The data were analyzed with the Statistical Package for Social Sciences for Windows (SPSS, 1993).

Factor Analysis of Nisonger CBRF

Our first step was to eliminate infrequently endorsed items by dropping out all items rated for fewer than 5% of the children. One item, number 56, "Talks about suicide," was eliminated by this criterion from both the parent and teacher ratings. Next, exploratory factor analyses were conducted using the approach adopted previously by Kolko (1988). The procedures for deriving the factor solution for the Problem Behavior items are described first. Kolko derived five Problem Behavior factors (and we added sets of stereotypy and self-injury items); therefore, we analyzed for factor solutions with 4 to 8 factors. In an effort to replicate Kolko's (1988) statistical procedures, a principal components extraction method was used, followed by varimax rotation. As noted below, this resulted in what appeared to be an acceptable factor structure and factor loadings. Hence a second extraction method was not used. Factors with eigenvalues exceeding 1.0 were retained. Factor scree plots were graphed to help decide on the number of factors. These showed an elbow at five or six factors.

In selecting the best factor solution, we strived to maximize the overlap between the factor analyses of parent and teacher ratings, which were analyzed

separately. Items were adopted as loading on a given factor if (a) they loaded .35 or higher on that factor and this loading was at least .10 higher than the loading for any other factor; or (b) they loaded .35 or higher on that factor, this was the highest factor loading, and they loaded on the same respective factor on the alternate version (parent or teacher). Criterion "b" is slightly looser because the item could load nearly equally highly on more than one factor and still be retained in the final solution. Both the six- and seven-factor solutions appeared to be highly interpretable, showed a high degree of consistency between parent and teacher solutions, and had moderately high similarity with the original solution published by Kolko (1988). The major differences were that the seven-factor solution produced separate stereotypic behavior and self-injury factors and uninterpretable seventh factors, whereas the six-factor solution produced a combined self-injury/stereotypic behavior factor and a sixth that was interpretable. In the end, we adopted the simpler six-factor solution.

We also conducted a second-order factor analysis on the Problem Behavior factors that emerged to see if broad second-order externalizing and internalizing dimensions emerged, as is so common in factorial research in children of average IQ. This was done by converting raw scores to *t*-scores and performing a principal-components analysis with varimax rotation.

For the Social Competence items, we used basically the same procedures, but without consideration of the overlap between the parent and teacher ratings. Because Kolko (1988) derived a two-factor structure, we also specified a two-factor solution.

Parent version of Nisonger CBRF. The factor loadings for the parent data on the Problem Behavior items are presented in Table 2. Fifty-eight items contributed to the final solution and had a mean factor loading of .60. The six factors accounted for 51.3% of the variance, as follows: Factor 1, 27.6%; Factor 2, 7.1%; Factor 3, 5.9%; Factor 4, 4.1%; Factor 5, 3.3%; and Factor 6, 3.2%. The factors were given the following names: (1) Conduct Problem, (2) Insecure/Anxious, (3) Hyperactive, (4) Self-Injury/Stereotypic, (5) Self-Isolated/Ritualistic, and (6) Overly Sensitive. Factor 1 (16 items) includes a variety of acting-out problems, such as arguing, cruelty to animals, disobedience, fighting, and so forth. Factor 2 (comprising 15 items) includes several items suggestive of elevated anxiety (e.g., self conscious, worrying) and feelings of insecurity (e.g., anxious to please others, self conscious, says that no one likes him/her). Factor 3 (9 items) includes a variety of symptoms found to define Attention Deficit Hyperactivity Disorder (ADHD), such as trouble concentrating, distractibility, and overactivity. Factor 4 (7 items) predominantly contains self-injurious behaviors, but head/body rocking is included as well. Factor 5 contains 8 items related to social withdrawal, shyness, and repetitive ritualistic behaviors. Finally, Factor 6 (5 items) includes items describing an overly-sensitive disposition, such as clinging to adults, tearfulness, and feelings being easily hurt.

TABLE 2
Factor Loadings for Problem Behavior Items Derived From Parent Ratings

Item ^a	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
01 Apathetic	.100	.177	.061	.139	.377	.083
02 Argues/adults	.588	.409	.218	-.031	-.099	.131
03 Clings	.028	.134	.167	.163	.190	.504
04 Cruelty	.692	.173	.132	.224	.120	.137
05 Indecisive	.159	.360	.367	.099	.139	.332
06 Crying	.256	.098	.123	.260	.089	.553
07 Hits self	.180	.008	.217	.670	.025	.249
08 Defiant	.720	.069	.289	.131	.092	.244
09 Destroys	.491	.095	.300	.201	.072	.048
10 Difficulty concentrating	.127	.218	.687	.098	.087	.133
11 Disobedient	.689	.095	.425	.080	.050	.103
12 Rocks body	.042	.046	.195	.436	.319	.016
13 Lacks guilt	.510	.230	.431	.105	.220	-.031
14 Distractible	.393	.239	.561	.095	.167	.064
15 Frustrated	.369	.105	.395	.136	.137	.508
16 Over sensitive	.081	.430	.084	.163	.080	.636
17 Exaggerates abilities	.127	.553	.144	.002	-.028	.269
18 Explosive	.625	.168	.137	.201	.180	.390
19 Rituals	.037	.131	.295	.362	.377	-.152
20 Fails to finish	.133	.225	.658	.081	.094	.106
21 Feelings hurt	.083	.484	.059	.120	.151	.590
22 Others against	.243	.708	.063	.031	.054	.173
23 Harms self	.100	.118	.131	.720	.043	.321
24 Feels worthless	.167	.655	.003	.018	.204	.108
25 Fidgets	.210	.062	.684	.221	.088	.118
26 Shy, bashful	.001	.242	.055	-.113	.610	.260
27 Fights	.701	.241	-.005	-.029	.092	-.013
28 Impulsive	.532	.161	.545	.010	.125	-.053
29 Irritable	.420	.130	.282	.273	.197	.387
30 Flaps objects	-.047	.054	.473	.406	.206	.007
31 Isolates self	.123	.041	.126	.331	.652	.051
32 Lying	.274	.694	.167	-.007	-.013	-.117
33 Nervous movements	.083	.239	.357	.277	.209	.082
34 Nervous	.182	.390	.334	.300	.250	.123
35 Gouges self	.114	-.102	.236	.503	.021	.098
36 Overactive	.221	-.069	.777	.117	-.016	.132
37 Anxious to please	.062	.493	.163	-.047	-.135	.265
38 Excited	.199	.165	.646	.082	-.063	.100
39 Attacks	.632	.068	.056	.314	.064	.084
40 Refuses to talk	.207	-.124	-.011	-.053	.643	.113
41 Repeats	.100	.022	.440	.112	.291	.066
42 Restless	.280	-.045	.746	.082	-.020	.204
43 Runs away	.451	.050	.450	.065	.057	.030
44 No one likes	.274	.671	.043	-.002	.004	.110
45 Secretive	.048	.501	.126	-.026	.372	-.034
46 Bites self	.027	.034	.045	.709	.026	.133
47 Self-conscious	.009	.614	-.003	-.081	.249	.210
48 Shifts from topic	.187	.518	.372	-.005	-.044	-.076
49 Short attention	.126	.085	.696	.158	.179	.110

(Table continued on next page)

TABLE 2. Continued

Item ^a	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
50 Shy, timid	-.048	.300	.135	-.111	.598	.266
51 Steals	.267	.557	.036	.236	-.029	-.119
52 Repetitive behavior	.046	.213	.330	.371	.410	-.159
53 Stubborn	.598	.035	.198	-.006	.207	.353
54 Mood changes	.443	.210	.223	.327	.177	.431
55 Sulks	.262	.447	-.005	.173	.341	.252
57 Hurts self	.158	-.024	.093	.750	.033	.103
58 Talks back	.631	.441	.224	-.014	-.149	.064
59 Talks too much	.314	.503	.397	-.028	-.235	-.018
60 Tantrums	.547	.005	.239	.203	.120	.442
61 Threatens others	.569	.313	.043	.215	.024	-.191
62 Threatens self-harm	.301	.387	-.014	.425	.102	-.209
63 Body movements	.066	-.032	.430	.408	.356	-.134
64 Fearful	.129	.384	.225	.162	.259	.256
65 Underactive	.076	.474	.028	.071	.377	.039
66 Unhappy	.229	.411	.014	.354	.270	.187
67 Violates rules	.684	.228	.310	-.011	.044	-.043
68 Grinds teeth	.084	-.126	.052	.296	.294	.031
69 Withdrawn	.103	.060	.168	.232	.676	.042
70 Worries	.055	.580	.055	.009	.106	.079
71 Argues/peers	.599	.482	.125	-.044	.047	.156

Note. For brevity, only the root item is given. The full CBRF is available on request from the authors.

^aItem 56, "Talks about suicide," does not appear because it was endorsed for fewer than 5% of subjects.

Henceforth, these groupings of items will be referred to as subscales. Coefficient alpha, which measures the extent to which each item on a given subscale is correlated with the remaining items (Nunnally, 1967), was calculated for all subscales. The alpha coefficients were as follows: (a) .93, (b) .89, (c) .90, (d) .81, (e) .77, and (f) .80, for the six subscales, respectively (median = .85).

The second-order factor analyses on the Problem Behavior subscales revealed only one second-order factor for both the parent and the teacher ratings. The analysis of the parent data accounted for 55.1% of the variance, and the teacher analysis accounted for 46.7%.

The results for the Social Competence items are presented in Table 3. Six of the items loaded with Factor 1 and four with Factor 2. Factor 1 was labelled Compliant/Calm and included items such as accepting redirection, rule following, cheerfulness, and patience. Factor 2 was labelled as Adaptive Social (same label as employed by Kolko) and included items relating to clear expression of ideas, group participation, sharing with others, and staying on task. Collectively the two factors accounted for 55.2% of the variance: 44.8% for Factor 1 and 10.4% for Factor 2. The mean factor loadings for Factors 1 and 2 were .66 and .68, and their respective alpha coefficients were .82 and .73.

TABLE 3
Factor Loadings for Social Competence Items of the
Nisonger CBRF

Items	Factor 1	Factor 2
Parent ratings		
1 Accepted redirection	.72	.20
2 Expressed ideas clearly	.02	.77
3 Followed rules	.63	.41
4 Initiated positive interactions	.56	.48
5 Participated in group activities	.33	.68
6 Resisted provocation	.76	.06
7 Shared with/helped others	.26	.76
8 Stayed on task	.46	.51
9 Was cheerful or happy	.55	.22
10 Was patient/able to delay	.77	.22
Teacher ratings		
1 Accepted redirection	.68	.42
2 Expressed ideas clearly	.01	.79
3 Followed rules	.67	.45
4 Initiated positive interactions	.38	.63
5 Participated in group activities	.44	.71
6 Resisted provocation	.83	.08
7 Shared with/helped others	.33	.68
8 Stayed on task	.26	.73
9 Was cheerful or happy	.72	.16
10 was patient/able to delay	.72	.38

Teacher version of Nisonger CBRF. The factor loadings for the teacher data on the Problem Behavior items appear in Table 4. Sixty-two items met the criteria described earlier for loading on a given factor, with a mean loading of .58. The six factors explained 49.7% of the variance as follows: Factor 1, 21.3%; Factor 2, 8.8%; Factor 3, 7.1%; Factor 4, 5.5%; Factor 5, 3.6%; and Factor 6, 3.4%. The content of the first five factors was essentially the same as that for the first five factors described from the parent ratings, and the same labels were assigned. However, Factor 6 was quite different and was labelled Irritable. It contained items such as tearfulness, proneness to frustration, changeability of mood, and tantrums. The resulting subscales had the following numbers of items and associated alpha coefficients: (a) Conduct Problem (13 items), .91; (b) Insecure/Anxious (15 items), .88; (c) Hyperactive (8 items), .87; (d) Self-Injury/Stereotypic (9 items), .83; (e) Self-Isolated/Ritualistic (11 items), .81; and (f) Irritable (6 items), .88 (median = .88).

There was a remarkable degree of overlap between the two factor solutions. If the parent solution is used as the basis for comparison, 84.5% of the items in the teacher data emerged on the same respective factors (including the Factor 6 items, which were quite different across analyses). If the factor solution for the teacher ratings is used as the basis for comparison, 79.0% of the items in the parent data emerged on the same respective factors (again, including items for Factor 6).

TABLE 4
Factor Loadings for Problem Behavior Items Derived From Teacher Ratings

Item ^a	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
01 Apathetic	.150	.032	.171	.125	.549	.138
02 Argues/adults	.526	.406	.136	-.109	-.003	.244
03 Clings	.033	.251	.149	.102	.186	.121
04 Cruelty	.657	.242	.039	.234	-.019	.212
05 Indecisive	.030	.379	.355	.052	.325	-.008
06 Crying	.135	.032	.123	.175	-.001	.708
07 Hits self	.173	-.082	.057	.633	-.012	.298
08 Defiant	.688	.106	.204	.041	.013	.397
09 Destroys	.663	.058	.215	.242	.015	.116
10 Difficulty concentrating	.097	.120	.704	.058	.296	.024
11 Disobedient	.708	.036	.311	.088	.029	.263
12 Rocks body	-.069	.068	.120	.536	.218	-.063
13 Lacks guilt	.653	-.054	.265	.047	.094	.016
14 Distractible	.498	.028	.484	-.045	.130	.097
15 Frustrated	.260	.256	.304	.256	.123	.418
16 Over sensitive	.010	.674	.052	-.120	-.013	.368
17 Exaggerates abilities	.185	.483	.033	-.010	-.155	-.023
18 Explosive	.475	.182	.057	.272	.044	.586
19 Rituals	.165	-.057	.186	.380	.431	-.002
20 Fails to finish	.205	-.054	.597	.027	.234	-.025
21 Feelings hurt	.031	.658	.017	-.138	-.017	.342
22 Others against	.307	.638	-.083	-.044	.051	.029
23 Harms self	.088	-.025	-.014	.654	.064	.215
24 Feels worthless	.222	.735	-.061	.065	.236	-.029
25 Fidgets	.134	.081	.749	.119	.154	.046
26 Shy, bashful	-.240	.400	.048	-.025	.444	-.052
27 Fights	.538	.197	.098	.149	-.008	.133
28 Impulsive	.486	.188	.457	.105	-.029	.163
29 Irritable	.349	.218	.124	.193	.177	.624
30 Flaps objects	.108	-.072	.244	.577	.264	-.030
31 Isolates self	.030	-.035	.114	.309	.564	.218
32 Lying	.494	.407	-.002	.131	.013	-.401
33 Nervous movements	-.011	.232	.334	.381	.230	-.052
34 Nervous	.009	.435	.266	.254	.178	.117
35 Gouges self	.118	-.056	.154	.556	.052	.080
36 Overactive	.242	.086	.782	.137	-.013	.117
37 Anxious to please	.006	.577	.206	-.011	-.139	-.166
38 Excited	-.053	.253	.656	.088	-.214	.067
39 Attacks	.561	-.001	-.018	.428	-.062	.193
40 Refuses to talk	.070	-.014	.064	.049	.622	.103
41 Repeats	.032	.002	.375	.361	.118	.139
42 Restless	.288	.002	.776	.150	-.132	.152
43 Runs away	.484	-.220	.429	.173	.130	.141
44 No one likes	.291	.638	-.030	.052	.074	-.139
45 Secretive	.000	.303	.062	.003	.531	-.073
46 Bites self	.060	.050	-.063	.681	-.142	.125
47 Self-conscious	-.162	.601	.004	-.055	.288	.040
48 Shifts from topic	.081	.544	.216	-.058	-.072	-.036
49 Short attention	.182	.098	.701	.057	.181	.056

(Table continued on next page)

TABLE 4. Continued

Item ^a	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
50 Shy, timid	-.201	.370	.080	-.071	.573	-.093
51 Steals	.465	.233	-.029	.005	.065	-.280
52 Repetitive behavior	.144	-.081	.231	.405	.512	-.047
53 Stubborn	.400	.096	.284	-.005	.115	.458
54 Mood changes	.386	.189	.044	.286	.089	.576
55 Sulks	.196	.533	-.067	-.020	.374	.330
57 Hurts self	.144	-.005	-.027	.764	-.050	.298
58 Talks back	.585	.470	.109	-.041	-.044	.209
59 Talks too much	.215	.449	.371	.060	-.145	.021
60 Tantrums	.389	-.021	.085	.289	.044	.660
61 Threatens others	.523	.395	-.176	.151	.048	.062
62 Threatens self harm	.219	.164	-.043	.367	.093	-.075
63 Body movements	.089	-.086	.306	.675	.210	-.029
64 Fearful	-.174	.469	.155	.148	.263	.302
65 Underactive	-.016	.055	-.079	-.074	.616	-.115
66 Unhappy	.164	.232	-.118	.140	.468	.301
67 Violates rules	.748	.005	.312	.064	.015	.115
68 Grinds teeth	.167	-.089	.122	.088	.028	.017
69 Withdrawn	-.019	-.139	.132	.228	.699	.113
70 Worries	-.004	.552	-.007	.056	.152	.078
71 Argues/peers	.475	.617	.055	-.051	-.022	.148

Note. For brevity, only the root item is given. The full CBRF is available on request from the authors.

^aItem 56, "Talks about suicide", does not appear because it was endorsed for fewer than 5% of subjects.

The factor structure for the Social Competence data from the teacher ratings appear in the bottom half of Table 3. Five items each loaded on Factors 1 and 2, which were again labelled Compliant/Calm and Adaptive Social. Item content was nearly the same as for the parent ratings, except that item 4 ("initiated positive interactions") crossed over from the Compliant/Calm parent factor to the Adaptive Social teacher factor. These factors accounted for 62.2% of the variance; Factor 1 accounted for 51.2% and Factor 2 for 11.0%. The mean factor loadings for factors 1 and 2 were .72 and .71, and the respective alpha coefficients were .85 and .83.

Parent-Teacher Agreement

Next, we looked at the correspondence between subscale scores for those children who were rated both by parents and teachers ($n = 189$). To do this, we used the subscales derived separately for each type of rater, despite the fact that only two items were common to the composition of the last subscale of the two scoring schemes. The Pearson correlations for the Problem Behavior subscales were as follows : (a) .37, (b) .53, (c) .42, (d) .54, (e) .51, and (f) .22.

For the Social Competence subscales, the correlations were as follows: (a) .32 and (b) .30. All correlations were significant at the .01 level.

Correspondence Between Nisonger CBRF and ABC

The final exercise entailed a comparison between ratings on the Problem Behavior subscales of the Nisonger CBRF and subscales of the Aberrant Behavior Checklist to look at concurrent validity. Fifty-eight children were rated on both scales by their parents and 62 by their teachers. The Pearson correlations between subscales appear in Table 5. On a priori clinical grounds, we expected positive correlations (ABC vs. Nisonger CBRF) between ABC I (Irritability) on the one hand and CBRF 1 (Conduct Problem, both parent and teacher versions), 6 (Overly Sensitive, parent version), and 6 (Irritable, teacher version) on the other. Other expected relationships were for ABC II (Lethargy, Social Withdrawal) and CBRF 5 (Self-Isolated/Ritualistic); for ABC III (Stereotypic Behavior) and CBRF 4 (Self-Injury/Stereotypic), ABC III and CBRF 5 (Self-Isolated/Ritualistic); and for ABC IV (Hyperactivity, Noncompliance) and CBRF 1 (Conduct Problem) and 3 (Hyperactive). As can be seen from inspection of Table 5, all of these subscale combinations resulted in high correlation coefficients (all $ps < .01$). The median correlation for subscales derived from parent ratings that were expected to be associated was .72 (range .49 to .80). The median correlation for the teacher ratings was .69 (range .55 to .85). However, it

TABLE 5
Correspondence Between Subscale Scores From the Aberrant Behavior Checklist
and Nisonger CBRF

Nisonger CBRF	Aberrant Behavior Checklist				
	I Irritability	II Lethargy/ Social Withdrawal	III Stereotypic Behavior	IV Hyperactivity/ Noncompliance	V Inappropriate Speech
Parent ratings					
1. Conduct Problem	.72	.37	.24	.66	.58
2. Insecure/Anxious	.41	.44	.33	.38	.66
3. Hyperactive	.54	.53	.53	.80	.66
4. Self-Injury/Stereotyp.	.66	.48	.49	.45	.37
5. Self-Isolated/Ritual.	.39	.79	.76	.27	.40
6. Overly Sensitive	.72	.52	.37	.47	.41
Teacher ratings					
1. Conduct Problem	.60	.18	.28	.71	.40
2. Insecure/Anxious	.31	.28	-.07	.31	.48
3. Hyperactive	.33	.21	.35	.69	.39
4. Self-Injury/Stereotyp.	.58	.43	.66	.37	.16
5. Self-Isolated/Ritual.	.21	.81	.55	.17	.07
6. Irritable	.85	.25	.39	.56	.35

must also be acknowledged that several other subscale combinations also resulted in large positive correlations.

DISCUSSION

Factor Structure of the Nisonger CBRF

In general, the factor structure of the Nisonger CBRF appears to make sense with respect to prior factorial research, and it also appears to be internally consistent. In a sense, all five of Kolko's (1988) derived Problem Behavior factors were replicated, although with some notable differences as well. Eight of nine items on Kolko's Withdrawal/Depression factor emerged on the factor that we labelled Self-Isolated/ Ritualistic; items that we added gave this factor a slightly different flavor, resulting in a name change. All four of Kolko's Anxiety items resolved onto our Insecure/Anxious factor. However, four of six items on Kolko's Negative Self-Image/Self-Injury factor also loaded with our Insecure/Anxious factor. Because both sets of internalizing items resolved onto the Insecure/Anxious factor, this suggests that Kolko may have overfactored. Only 9 of 18 items on Kolko's Antisocial Behavior factor loaded most heavily on our Conduct Problem factor. Some of the items that were lost include "exaggerates abilities or achievements," "impulsive," and "sudden changes in mood," which do not have great face validity as Antisocial/Conduct Problem-type items. Finally, 7 of 12 items on Kolko's Hyperactivity factor were replicated here. Some of the lost items include "clings to adults," "disobedient," "lying or cheating," and "runs away from staff," which again do not have good face validity for hyperactivity (e.g., American Psychiatric Association, 1994 [*DSM-IV*]).

We had the advantage of greater numbers of subjects, availability of parent and teacher ratings, and access to Kolko's prior work. Hence, we suspect that the factor structures presented here may be more robust than Kolko's, although the solutions are quite similar overall. Also, it is important to note that Kolko's subjects were psychiatric inpatients of normal IQ, whereas, ours were generally younger and the vast majority had developmental disabilities.

The Social Competence factors were also largely replicated. One item ("stayed on task") moved from Kolko's (1988) Compliant factor to our Adaptive Social factor, and another ("cheerful or happy") moved from Kolko's Adaptive Social factor to our Compliant/Calm factor. The remaining 8 (of 10) items were consistent across studies. Hence, despite the fact that we were studying quite different populations, Kolko's and our results were quite consistent.

In a discussion of the literature on psychopathology, Aman (1991a, 1991b) and Einfeld and Aman (1995) identified seven factors that have tended to recur across factor analytic research in the developmental disabilities field. These recurring factors included (1) Aggressive, Antisocial Behavior, (2) Social Withdrawal, (3) Stereotypic Behavior, (4) Hyperactivity, (5) Repetitive Verbalizations, (6) Anxious, Tense, Fearful, and (7) Self-injurious Behavior. With the exception of

(5), Repetitive Verbalizations, all of these recurring factors have a clear analogue in the present study. Hence, the factor structure observed here is not only reasonably consistent with Kolko's findings, but it is remarkably consistent with the existing literature in the mental retardation field. These dimensions also fit quite well with empirical findings in children of normal IQ (Achenbach, Conners, Quay, Verhulst, & Howell, 1989; Quay, 1986). The main differences were the emergence of a Self-Injury/Stereotypy factor and the absence of a Delinquent Behavior factor within our data.

As noted earlier, we had the advantage of having two independent sets of ratings completed by parents and teachers. This provided a kind of cross-validation of results and is likely to bolster the integrity of the solutions adopted. Depending on which solution was used as the basis of the comparison, between 79% and 84% of items resolved onto the same respective factors across informant type. Hence, our factor structure is likely to prove to be robust over time, although this needs to be resolved by future research.

Psychometric Characteristics of the Nisonger CBRF

In general, the present data suggest that the Nisonger CBRF is quite sound psychometrically. The median alpha value was .85 for parent ratings and .87 for teacher ratings (Problem Behavior subscales), which is marginally higher than the mean value reported by Kolko (1988). Internal consistency was also high for the Social Competence subscales (median of .78 for the parent subscales and .84 for the teacher subscales).

The correlations between parents and teachers suggested adequate interrater reliability. Excluding subscale 6 (which had only two common items across informant groups), the interrater correlations for Problem Behavior items ranged from .37 to .54 (median = .51). Although this may not sound very good at first, it has to be taken in context with the literature as a whole. Achenbach, McConaughy, and Howell (1987) conducted a meta-analysis of 119 studies (encompassing 269 samples) in which interrater reliability was examined. Achenbach et al. (1987) compared findings when raters had similar roles (e.g., teacher pairs, mental health worker pairs) and when raters had different roles (e.g., parent-teacher pairs). In the case of raters with similar roles, an overall mean correlation of .60 was found (averaging across all instruments); whereas, when raters with different roles were used, the overall mean fell to .28. Achenbach et al. (1987) were quick to point out that the lower correlations obtained by raters with different roles do not necessarily signify poor reliability. Usually such raters were functioning in very different situational contexts, and their own interactions with the children rated may have differed substantially. In any case, our median agreement level between parents and teachers of .51 stacks up quite well when compared with the figure of .28 for the field as a whole. The parent-teacher correlations for the Social Competence subscales

(.32 and .30) were lower and more in keeping with the kinds of results that Achenbach et al. (1987) found. It may be more difficult for raters to agree on prosocial as compared with problematic behavior.

The correspondence between the Nisonger CBRF and the ABC was substantial and provided support for the former's convergent validity. Median correlations of .72 and .69 (parents and teachers, respectively) were found, which indicates that subscales that appeared clinically related seem to tap similar constructs. Further research might profitably examine any relationship between CBRF subscale scores and membership in criterion groups, such as being assigned a common *DSM-IV* diagnosis or not.

Overlap With the ABC and Future Applications of the Nisonger CBRF

Although the ABC and the Nisonger CBRF have considerable overlap of content, they also differ in important ways. The ABC was primarily developed to monitor treatment effectiveness, whereas the Nisonger CBRF was intended more for assessment purposes. Furthermore, although some of the subscales share similar names (e.g., Hyperactivity, Self-Injury/Stereotypy), several subscales are unique to each instrument (e.g., Irritability and Inappropriate Speech on the ABC and Conduct Problem and Insecure/Anxious on the CBRF). Also, unlike most behavior rating scales in the field, the Nisonger CBRF (by virtue of the Social Competence subscales) enables raters to comment positively on the clients under consideration. This may reveal important clinical strengths or weaknesses, and it may be important for consumer acceptance. With time, the optimum applications for these tools will become much clearer. Their differences from one another pose an advantage, as they increase the options available to workers trying to assess clinical problems and monitor change.

The original CBRF was modified here for a child population attending a University Affiliated Program (UAP) for people with mental retardation. The resulting Nisonger CBRF is of obvious relevance to any UAPs seeing child clients. It would also appear to be quite pertinent to developmental disability clinics seeing children and child psychiatry units that see appreciable numbers of youngsters with developmental handicaps. The full instrument is available on request. Furthermore, analyses for age and sex effects and a full set of norms have been presented in a companion paper (Tassé et al., 1996). As these materials are in the public domain, we are hopeful that this instrument will receive widespread use.

When Aman (1991a, 1991b) reviewed the existing array of behavior rating instruments in the field, he concluded that there was a relative paucity of instruments for rating children with developmental disabilities. The Nisonger CBRF is an additional tool that will, we hope, strengthen the set of options available to workers in this area. It appears to be consistent with previous factorial research, it provides good coverage of both acting out and internalizing

problems, and preliminary data on its psychometric characteristics are encouraging. We urge other workers to carry out similar research with the Nisonger CBRF. Studies with independent samples would be helpful to assess the robustness of the factor structure of the Nisonger CBRF and to determine the generality of the psychometric characteristics observed here.

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