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# Stability of Behavioral Ratings of Children with SLI

## RESEARCH NOTE

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Standardized rating scales represent the most reliable method of identifying socioemotional behavioral problems in children with SLI. However, limited information exists on the situational specificity or stability of rating scales applied to this population. In Redmond and Rice (1998), we presented evidence of limited reliability and stability between ratings collected from teachers and parents during kindergarten and first grade. In this research report, we provide additional data on the same group of children over the early elementary period (kindergarten–second grade). The results indicate diminishment in teacher-reported behavior problems in most areas of socioemotional development from kindergarten to second grade and increasing congruence between teacher and parent ratings.

**KEY WORDS:** specific language impairment, socioemotional development, children's language impairment, behavioral rating scales, emotional or behavioral disorders in children

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Children with developmental language impairments are often characterized as at risk for significant socioemotional problems (Beitchman, Brownlie, & Wilson, 1996; Beitchman, Hood, & Inglis, 1990; Benasich, Curtiss, & Tallal, 1993; Cantwell & Baker, 1985; Paul, Cohen, & Carpulo, 1983; Petrie, 1975; Stevenson & Richman, 1978). Estimates of the co-occurrence of language impairments and socioemotional problems in children vary widely across studies (see reviews by Baltaxe & Simmons, 1990; Donahue, Cole, & Hartas, 1994; Gallagher, 1999; Prizant et al., 1990; Windsor, 1995). In spite of this variation, most reports suggest a rate of socioemotional difficulties in children with language impairments that is considerably higher than expectations based on the normal population (but see Redmond & Rice, 1998, and Tallal, Dukette, & Curtiss, 1989, for values much lower than other reports). The consistency of this finding across studies suggests that to ensure appropriate and effective services, professionals working with these children should anticipate and be prepared to address socioemotional problems (Gallagher, 1999).

Our ability to adequately address these problems rests upon a clear understanding of the relationship between language impairments and socioemotional problems. For example, are language impairments by themselves a sufficient risk factor for the development of longstanding socioemotional problems? Are the reported socioemotional problems of children with developmental language impairments similar to the ones observed in populations of children identified as having a primary socioemotional deficit? Stability of behavioral symptoms over time and across contexts is widely recognized as important for the valid diagnosis of socioemotional pathology in children (e.g., Achenbach, McConaughy, & Howell, 1987; Council for Children with Behavioral Disorders, 1991;

Dwyer & Stanhope, 1997; Merrell, 1999). IDEA provisions for special services under the category of *emotionally disturbed* (ED), require that behavioral problems persist “over a long period of time and to a marked degree” (cf. Merrell, 1999). Likewise, the definition of *emotional or behavioral disorder* (EBD) provided by the National Association of School Psychologists includes provisions that behavior problems must be “more than temporary, expected responses to stressful events in the environment” and must be “consistently exhibited in a school-related setting and at least one other setting” (Dwyer & Stanhope, 1997).

Standardized behavioral rating scales represent the most reliable method of identifying clinically significant levels of socioemotional pathology in children (cf. Elliott, Busse, & Gresham, 1993; Martin, Hooper, & Snow, 1986; McConaughy, 1992; Merrell, 1999), and many states require them for classification of EBD (cf. Merrell, 1999). Several studies of children with language impairments have used standardized rating scales to evaluate children’s socioemotional integrity, but these investigations usually included children with a variety of clinical conditions (such as mental retardation) and were often based on the evaluation of a single informant at a single point in time. Thus, much of the existing literature does not allow us to sort out the possible contributions of related disabilities, or differences between adult judges. Without such evidence, the relationship between language impairments and socioemotional pathology cannot be clearly inferred.

In Redmond and Rice (1998), we examined the congruence between teacher and parent ratings of 17 children with specific language impairment (SLI) and an age-matched control group (AM) of 20 normally developing children. Two standardized rating scales, the Child Behavior Checklist (CBCL; Achenbach, 1991a) and the Teacher Report Form (TRF; Achenbach 1991b), were

used. These scales were selected because the standardization and scoring procedures for both scales are directly comparable and the two instruments are intended to be used together to establish socioemotional pathology. Table 1 displays the syndrome scales used by the CBCL and TRF. Cross-informant Pearson correlations between the two scales are reported to be in the modest-to-moderate range: mean  $r$  range = .31 to .67 (Achenbach, 1991c, pp. 75–78). Levels of stability reported for the CBCL subscales over 1- and 2-year intervals and the TRF subscales over 2- and 4-month intervals also show moderate levels of correlation: CBCL mean  $r$  range = .71 to .78 (Achenbach, 1991a, p. 79) and TRF mean  $r$  range = .71 to .74 (Achenbach, 1991b, p.61).

Ratings were collected from parent and teachers at the end of the kindergarten year and again at the completion of first grade. All of the children were free of perceptual, nonverbal, and severe speech limitations and were from monolingual English-speaking homes. Obtained means across the syndrome scales for both groups of children were within normal limits. This suggested that on the behavioral criteria of socioemotional pathology established by the CBCL and TRF, the children in the SLI group, like the children in the typically developing comparison group, were more like children not referred for mental health services than children referred for such services. Although within the normal range, the SLI group means were significantly higher than the control group means on some behavioral scales. The syndrome scales that showed significant group differences were the Withdrawn, Social Problems, Attention Problems, and Internalizing scales. Group differences were not observed on the Externalizing, Delinquent Behavior, Aggressive Behavior, Somatic Complaints, Anxious/Depressed, or Thought Problems scales. Significant group x rater effects were observed such that teachers, and not parents, rated the children

Table 1. Syndrome scales structure of the child behavior checklist and teacher’s report form, with a brief description of item content.

| Syndrome Scale             | Brief Description of Item Content   |
|----------------------------|---|
| <i>Withdrawn</i>           | Likes to be alone, shy, withdrawn and isolated  |
| <i>Somatic Complaints</i>  | Dizzy, tired, reports physical problems without known medical causes (list of 8 problems)   |
| <i>Anxious/Depressed</i>   | Sad or depressed affect, frequent crying, nervous   |
| <i>Social Problems</i>     | Is not well liked by other children, teased by other children                               |
| <i>Thought Problems</i>    | Hears sounds or voices that aren’t there, sees things that aren’t there, strange behaviors  |
| <i>Attention Problems</i>  | Impulsive behavior, inattention, difficulty concentrating, poor school work                 |
| <i>Delinquent Behavior</i> | Lying, cheating, stealing, keeps company with children who get into trouble, school truancy |
| <i>Aggressive Behavior</i> | Arguing, bullying, physically fighting, temper tantrums                                     |
| <i>Internalizing</i>       | Second order syndrome scale (Withdrawn + Somatic Complaints + Anxious/Depressed)            |
| <i>Externalizing</i>       | Second order syndrome scale (Aggressive Behavior + Delinquent Behavior)                     |

with SLI as having more Social Problems and Internalizing behavior problems. Stability and congruence were also examined on a case-by-case basis, using clinical cut-off scores provided by the technical manuals. The results of this analysis indicated that there was very little congruence between parents and teacher ratings and between ratings collected from kindergarten and first-grade teachers. In other words, children rated by their kindergarten teachers as having enough behavior problems to place them within the clinical range were not rated in that way by their parents or by their first-grade teachers.

In this report, we supplement the results of our earlier report by providing additional information on the long-term stability of the behavioral ratings of our study sample of children with SLI. With the addition of new data, our examination of differences between parent and teacher evaluations of the affected and control groups extends through the early elementary period (K–second grade).

## Method

### *Update on the Redmond and Rice (1998) Study Sample*

Parents and second-grade teachers of the 37 participants from Redmond and Rice (1998) were invited to participate in the present follow-up study and asked to complete the CBCL and TRF at the end of the children's second-grade school year (April/May). At the time of data collection, most of the children were 8 years old (SLI:  $M = 96.79$  months,  $SD = 3.12$ ; AM:  $M = 96.05$  months,  $SD = 3.94$ ). The protocol used in Redmond & Rice (1998) for distributing the rating scales was followed in the present study. Briefly, directions for completing the TRF were given to the children's second-grade teachers, and any questions were answered at that time. The CBCL was mailed directly to the children's parents along with written directions. Forms were mailed back to the investigators when completed. Teacher and parent forms were scored and entered into an electronic database by two research assistants.

Participants were originally recruited at age 5 years for the Kansas Longitudinal Study of Morphosyntactic Development (see Rice, Wexler, & Cleave, 1995; Rice, Wexler, & Hershberger, 1998). Data for the present study were collected at the 3rd, 5th, and 7th rounds of measurement in the longitudinal study, when the children were approximately 6, 7, and 8 years old.

Children in the SLI group were recruited for the longitudinal study while they were in preschool from the caseloads of certified speech-language pathologists. All of the children had been identified as language im-

paired at preschool, and most had been receiving services since that time. They all had receptive/expressive language impairment without severe speech impairment or limited intelligibility. At entry into the longitudinal study, they met the following criteria (Rice, Wexler, & Cleave, 1995): (a) previously identified as having a language impairment by a certified speech-language pathologist; (b) receptive language performance on the PPVT-R (Dunn & Dunn, 1981) one or more standard deviations below the mean; (c) expressive language performance one standard deviation or more below age expectations as measured by a calculation of mean length of utterance (MLU) from a sample of at least 150 utterances (normative information from Leadholm & Miller, 1993); (d) normal intellectual functioning as measured by the Columbia Mental Maturity Scale (CMMS; Burgemeister, Blum, & Lorge, 1972) at an age deviation score of 85 or higher; (e) passing score on a probe screening for articulation competency, with consistent use of final -t, -d, -s, and -z, and only minor mispronunciation on the Goldman-Fristoe Test of Articulation (GFTA; Goldman-Fristoe, 1986); and (f) normal hearing acuity as measured by a hearing screening at 25 dB at 1000, 2000, and 4000 Hz. In addition, the Test of Language Development–Primary (TOLD-P:2; Newcomer & Hammill, 1988) was administered to each child. The group mean on the Spoken Language Quotient was 75.9. Two children were within one standard deviation of the mean on this test, with quotients of 88 and 93, but were included because they met the other criteria.

Typically developing children within the same age range as the SLI group were selected from preschools in the same communities as the children with SLI. Children in the AM group met the following criteria: (a) identified as normally developing by teacher and parents, (b) receptive language skills within normal limits as measured by the PPVT-R, (c) expressive language within or above one standard deviation of the mean MLU for their age (Leadholm & Miller, 1993), (d) normal intellectual functioning as measured by the CMMS, (e) normal articulation as measured by the GFTA, and (f) normal hearing as measured by a hearing screening. All of the children in the AM group performed in the normal to high-normal range on the TOLD-P:2. None of the children in the AM group received speech or other special services.

## Results

Complete sets of CBCL and TRF forms were returned for 12 children from the SLI group and for 17 children from the age-match (AM) group. Profiles at age 8 years for the 29 participants are presented in Table 2. Children in the SLI and AM groups continued to dem-

onstrate profiles evident at their entry into the study. Children in the AM group continued to demonstrate normal to above-normal levels of performance across all measures. As a group and on an individual basis, children in the SLI group continued to show specific language impairment as evidenced by their normal levels of performance within the normal range on the nonverbal measure, the CMMS, and significant limitations on standardized language test performance (PPVT-R and TOLD-P:2).

In the SLI group, there were 8 boys and 4 girls: 11 Caucasian and 1 Native American. Mother's education was assessed on a scale where 1 = some high school and 5 = some graduate work. The SLI group mean on this measure was 2.75, with a distribution across the entire range. In the AM group, there were 9 boys and 8 girls: 15 Caucasian and 2 African American. The mean level of mother's education was 3.94. All mothers reported that they were high school graduates or above.

Five parents of children in the SLI group and three parents from the AM group did not return their rating scales. Three teachers from the SLI group and two teachers from the AM group did not return their rating scales. Thus, we were able to compare ratings collected at age 8 years to previous ratings collected at ages 6 and 7 years with 78% of the original sample. Although this attrition rate compares favorably to expected rates for follow-up studies in general, and mail surveys and questionnaires in particular, we were concerned about the effect that differential loss of subjects between the two comparison groups may have had on the generalizability of our results. One possibility is that the parents and teachers of children with the highest levels of socioemotional behavior problems or those children with the more severe language impairments may have been less likely to return their rating scales. To address these concerns, we examined the standard scores obtained on the cognitive, linguistic, and socioemotional measure-

ments collected at kindergarten of those children who participated in the present study as well as the original sample of children. No significant differences were found on any of the measures between the present subject pool and the original study sample in either the SLI or the AM group. Although not statistically significant, kindergarten mean syndrome scores for the present SLI sample on the TRF syndrome scales were consistently higher than the original sample.

### ***Socioemotional Ratings at Kindergarten, First Grade, and Second Grade***

Scoring on the CBCL and TRF scales is reported in terms of normalized *T* scores. These are norm-referenced scores based on a truncated cumulative frequency, where a *T* score of 67 corresponds to the 95th percentile and represents the clinical cut-off point. Table 3 displays the CBCL and TRF mean *T* scores for both the SLI and AM groups over the three sampling times. An initial observation is that at kindergarten, first grade, and second grade the mean levels of teacher and parent evaluations were within normal limits for both groups. It is also noted that the mean levels of teacher ratings collected on children in the SLI group at second grade were consistently lower than teacher ratings from kindergarten and first grade, especially on the Withdrawn and Internalizing syndrome scales.

### ***Analysis of Group Differences: Rater and Time Effects***

Data on the 29 participants across all three sampling times were used to examine group differences and their interactions across the different raters (parent, teacher) over the three sampling times (kindergarten, first grade, second grade). Group differences were analyzed in two ways: (a) a series of group x time x rater

Table 2. Participant profiles at time of study: group means (and standard deviations).

| Group | Number       | Age <sup>a</sup> | Mother's Education <sup>b</sup> | CMMS <sup>c</sup> | PPVT-R <sup>d</sup> | TOLD-P:2 <sup>e</sup> |
|-------|--------------|------------------|---------------------------------|-------------------|---------------------|-----------------------|
| SLI   | 12 ( 8 boys) | 96.33<br>(2.71)  | 2.57<br>(1.14)                  | 97.5<br>(11)      | 87<br>(9.05)        | 79.5<br>(8.48)        |
| AM    | 17 ( 9 boys) | 96.29<br>(3.94)  | 3.94<br>(0.82)                  | 115.82<br>(14.94) | 114.65<br>(10.06)   | 108.06<br>(9.58)      |

Note. Groups: SLI = Specific Language Impairment; AM = Age match

<sup>a</sup> Age in months

<sup>b</sup> Scale of 1 = some high school and 5 = some graduate school

<sup>c</sup> Columbia Mental Maturity Scale, age deviation score at round 5 for AM group

<sup>d</sup> Picture Peabody Vocabulary Test-Revised, standard score

<sup>e</sup> Test of Language Development Primary (2<sup>nd</sup> ed.), spoken language quotient at round 5 for AM group

**Table 3.** CBCL and TRF derived *T* scores: means (and standard deviations) by group, rater, and time of measurement.

|                     | Teacher Scale |        | Parent Scale |        |
|---------------------|---------------|--------|--------------|--------|
|                     | SLI           | AM     | SLI          | AM     |
| <b>Kindergarten</b> |               |        |              |        |
| Withdrawn           | 62 (10)       | 51 (3) | 55 (5)       | 51 (3) |
| Social Problems     | 58 (7)        | 54 (5) | 51 (2)       | 51 (3) |
| Attention Problems  | 60 (10)       | 53 (4) | 54 (6)       | 53 (5) |
| Internalizing       | 62 (9)        | 43 (8) | 47 (11)      | 42 (9) |
| <b>First Grade</b>  |               |        |              |        |
| Withdrawn           | 59 (11)       | 51 (3) | 52 (2)       | 52 (4) |
| Social Problems     | 57 (6)        | 52 (4) | 52 (4)       | 51 (2) |
| Attention Problems  | 59 (8)        | 53 (5) | 55 (7)       | 54 (5) |
| Internalizing       | 57 (8)        | 45 (8) | 47 (10)      | 46 (9) |
| <b>Second Grade</b> |               |        |              |        |
| Withdrawn           | 54 (3)        | 51 (2) | 51 (2)       | 51 (3) |
| Social Problems     | 57 (10)       | 52 (3) | 51 (4)       | 51 (3) |
| Attention Problems  | 57 (9)        | 54 (5) | 53 (7)       | 54 (4) |
| Internalizing       | 53 (10)       | 45 (9) | 43 (9)       | 45 (8) |

univariate analyses of variance, and (b) chi-square analyses treating the dependent variables as dichotomous using clinical cut-off values. In order to reduce the number of dependent variables and thereby reduce the risk of Type 1 error rates, our investigations focused on the four syndrome scales found in the earlier study and used to show group differences: Withdrawn, Social Problems, Attention Problems, and Internalizing Problems.

Significant group effects were observed on the Withdrawn [ $F(1, 25) = 19.02, p < .001, \eta^2 = .63$ ], Social Problems [ $F(1, 25) = 5.663, p = .025, \eta^2 = .63$ ], and Internalizing [ $F(1, 25) = 11.86, p = .002, \eta^2 = .32$ ] syndrome scales. Significant group differences were not observed on any other syndrome scales. This profile is consistent with previous characterizations of the socioemotional behavior problems of children with SLI as being more in the areas of internalizing and social problems than externalizing or aggressive behavior problems. In this sample, significant group differences on the Attention Problems were not found. This result contrasts with other reports that suggest that long-standing attention deficits frequently co-occur in children with language impairments (e.g., Beitchman, Brownlie, & Wilson, 1996; Cantwell & Baker, 1985; Goodyer, 2000; Melamed & Wozniak, 1999).

Significant group x rater effects were observed on the Withdrawn [ $F(1, 25) = 10.39, p = .004, \eta^2 = .29$ ], Social Problems [ $F(1, 25) = 7.23, p = .013, \eta^2 = .224$ ], and Internalizing [ $F(1, 25) = 11.72, p = .002, \eta^2 = .32$ ] syndrome scales. All other group x rater effects were non-significant. The two-way group x rater interactions are displayed in Figures 1–3. As shown by the Eta values, these interactions contributed 29%, 22%, and 32%

unique variance respectively to the total variation observed within these two measures. Importantly, teachers and not parents rated children with SLI as having more behavior problems for these scales than the control children.

Significant group x grade effects were observed on the Withdrawn [ $F(2, 24) = 7.55, p = .003, \eta^2 = .39$ ] and Internalizing [ $F(2, 24) = 4.08, p = .03, \eta^2 = .254$ ] syndrome scales. All other group x grade effects were non-significant. The two-way group x grade interactions are displayed in Figures 1 and 2. As shown by the Eta values, these interactions contributed 39% and 25% unique variance respectively to the total variation observed within these two measures. In both cases, teacher and parent ratings collected on the SLI group at kindergarten were significantly higher than ratings collected later at first and second grade. Figures 1 and 2 show mitigation over time on the Withdrawn and Internalizing syndrome scales, especially in the teacher ratings. By contrast, Figure 3 shows that teacher ratings on the Social Problems did not decline over time for the SLI children. Over each sampling time, teacher ratings of children were stable, showing better functioning in this area for children in the AM group than children in the SLI group.

Group and rater differences were also investigated by using the clinical cut-off scores provided by the CBCL and TRF manuals. The purpose of these analyses was to examine group and rater differences in the number of children identified as being in the clinical range that might have been masked by the group means. Results are reported in Table 4.

The chi-square analyses provide further evidence of

Figure 1. Teacher and parent ratings of Withdrawn behavior problems for the SLI and AM groups over time.

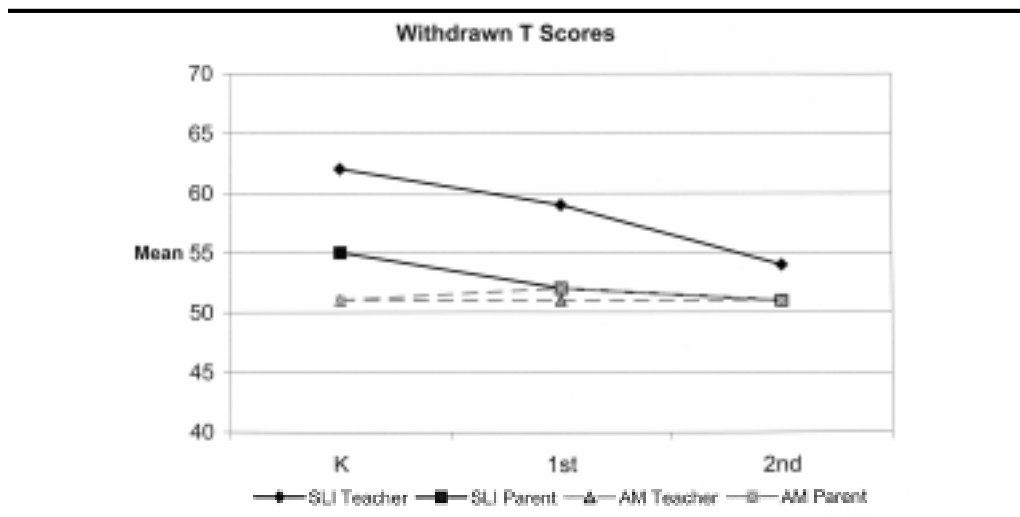


Figure 2. Teacher and parent ratings of Internalizing behavior problems for the SLI and AM groups over time.

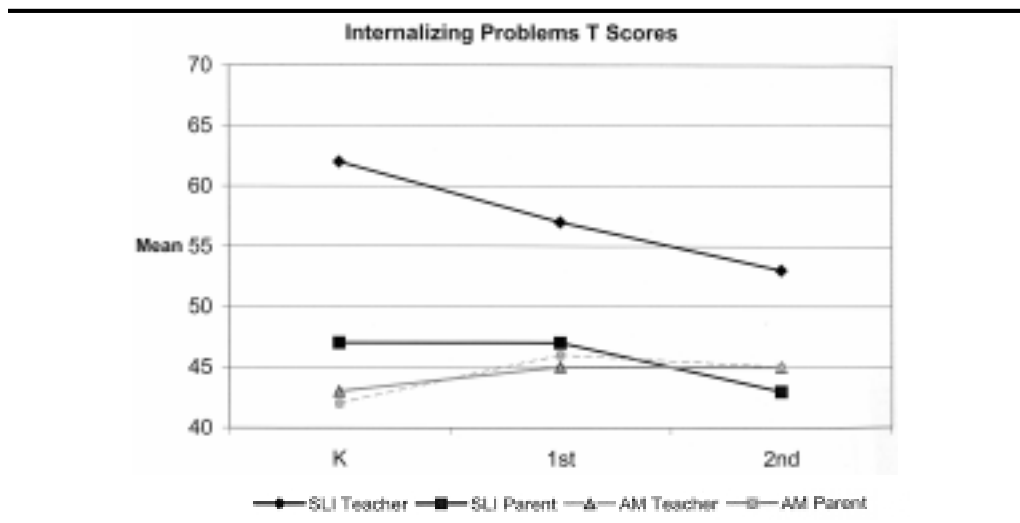
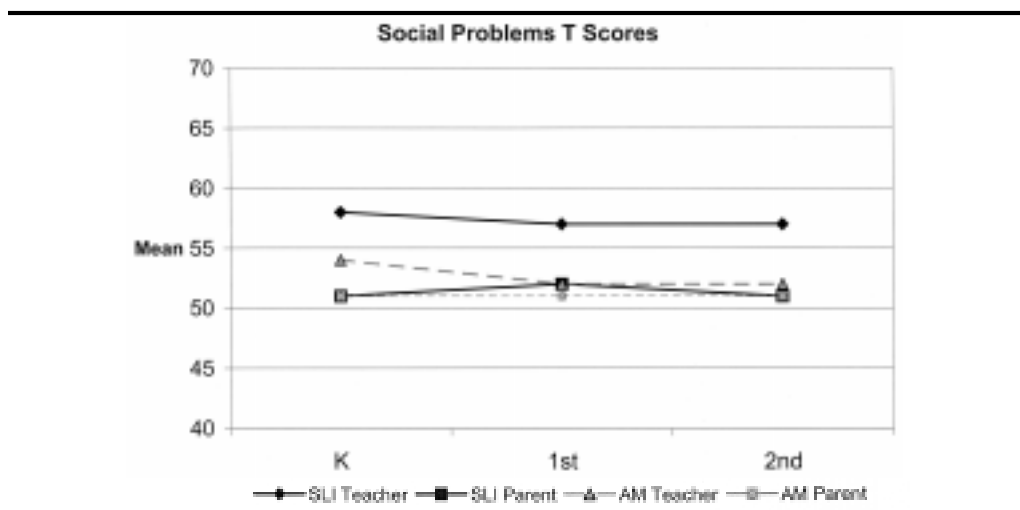


Figure 3. Teacher and parent ratings of Social Problems for the SLI and AM groups over time.



**Table 4.** Number of children identified as being in the clinical range.

|   | Teacher Scale |   | Parent Scale  |   |
|---|---------------|---|---------------|---|
|   | SLI<br>(n=12) | AM<br>(n=17)                            | SLI<br>(n=12) | AM<br>(n=17)                            |
| <b>Kindergarten</b>                     |               |   |               |   |
| Withdrawn                               | 5             | 0 <sup>a</sup>                          | 0             | 0                                       |
| Social Problems                         | 1             | 0                                       | 0             | 0                                       |
| Attention Problems                      | 4             | 0 <sup>b</sup>                          | 1             | 0                                       |
| Internalizing                           | 7             | 1 <sup>c</sup>                          | 1             | 0                                       |
| <b>First Grade</b>                      |               |   |               |   |
| Withdrawn                               | 2             | 0                                       | 0             | 0                                       |
| Social Problems                         | 0             | 0                                       | 0             | 0                                       |
| Attention Problems                      | 3             | 0 <sup>d</sup>                          | 1             | 0                                       |
| Internalizing                           | 5             | 1 <sup>e</sup>                          | 1             | 3                                       |
| <b>Second Grade</b>                     |               |   |               |   |
| Withdrawn                               | 0             | 0                                       | 0             | 0                                       |
| Social Problems                         | 2             | 0                                       | 0             | 1                                       |
| Attention Problems                      | 2             | 0                                       | 1             | 0                                       |
| Internalizing                           | 1             | 2                                       | 0             | 2                                       |
| <sup>a</sup> $\chi^2 = 8.559, p = .003$ |               | <sup>c</sup> $\chi^2 = 9.688, p = .002$ |               | <sup>e</sup> $\chi^2 = 5.490, p = .019$ |
| <sup>b</sup> $\chi^2 = 6.573, p = .01$  |               | <sup>d</sup> $\chi^2 = 4.740, p = .029$ |               |   |

mitigation of teacher-reported behavior problems over the early elementary grades. Teacher ratings at kindergarten and first grade, but not at second grade, placed more children from the SLI group in the clinical range on the 4 scales examined. Across all syndrome scales, only 4 children (3 SLI, 1 AM) were ever identified by both raters at any sampling time. Only one child within the SLI group was clinically identified by both parent and teacher ratings at all three sampling times. This child was identified on the Attention Problems syndrome scale.

### ***Within-Group Analyses: Associations Among Parent Ratings, Teacher Ratings, and Participant Characteristics***

For each participant, composite syndrome scores were calculated, consisting of the arithmetic mean of *T* scores collected from kindergarten, first grade, and second grade ratings. Individual composite scores across the different sampling times were also calculated for the nonverbal measure (CMMS) and the TOLD-P:2 spoken language quotient measure. To examine associations between parent ratings, teacher ratings, and participant characteristics, composite test scores and mother's education level were entered into bivariate correlation analyses (Tables 5 and 6).

These analyses revealed important similarities and differences between the two groups of children. For both groups, parent ratings of Social Problems and parent ratings of Attention Problems were strongly and significantly correlated (*r* values: .62 to .85). Parent ratings of Withdrawn and Internalizing problems were also strongly associated, but this is expected because children's Internalizing *T* scores are partly determined by their Withdrawn *T* scores. Teacher ratings in these areas also demonstrated similar levels of intercorrelation (*r* values: .78 to .95). These associations suggest that children rated as having significant Attention Problems by a rater were likely to be rated as having significant Social Problems by that same rater, an association that applies regardless of children's language status. For children in the AM group, Social Problems were also moderately associated with Withdrawn and Internalizing problems (both *r* values ~ .57)

Significant cross-informant correlations were observed only in the AM group, where parent ratings of Attention Problems were moderately correlated with teacher ratings of Attention Problems and Social Problems (*r* values: .65 to .72). The lack of significant cross-informant correlations for the SLI group is further evidence that parental and teacher judgments are not aligned for this group of children. It is also important to note that for each significant within- informant and

Table 5. Associations among parent ratings, teacher ratings, and participant characteristics: SLI group.

|                         | Mother's education level | CMMS                     | TOLD-P:2                  | Parent                  |                          |                           |                           | Teacher                  |                          |                           |                          |
|-------------------------|--------------------------|--------------------------|---------------------------|-------------------------|--------------------------|---------------------------|---------------------------|--------------------------|--------------------------|---------------------------|--------------------------|
|                         |                          |                          |                           | With-drawn              | Social Problems          | Attention Problems        | Internalizing             | With-drawn               | Social Problems          | Attention Problems        | Internalizing            |
| Mother's Ed. Level      | —                        | .601*<br><i>p</i> = .039 | .756**<br><i>p</i> = .004 | .249<br><i>p</i> = .460 | -.109<br><i>p</i> = .751 | .142<br><i>p</i> = .678   | .056<br><i>p</i> = .870   | .379<br><i>p</i> = .224  | -.172<br><i>p</i> = .593 | 0.288<br><i>p</i> = .364  | .430<br><i>p</i> = .163  |
| CMSS                    |                          | —                        | .615*<br><i>p</i> = .033  | .251<br><i>p</i> = .457 | -.342<br><i>p</i> = .304 | -.224<br><i>p</i> = .507  | .229<br><i>p</i> = .498   | .264<br><i>p</i> = .407  | -.172<br><i>p</i> = .593 | -.653*<br><i>p</i> = .021 | .386<br><i>p</i> = .216  |
| TOLD-P:2                |                          |                          | —                         | .574<br><i>p</i> = .065 | .170<br><i>p</i> = .618  | .184<br><i>p</i> = .588   | .220<br><i>p</i> = .515   | .363<br><i>p</i> = .246  | -.570<br><i>p</i> = .053 | -.602*<br><i>p</i> = .038 | .213<br><i>p</i> = .505  |
| Parent Withdrawn        |                          |                          |                           | —                       | .577<br><i>p</i> = .063  | .577<br><i>p</i> = .063   | .743**<br><i>p</i> = .009 | .048<br><i>p</i> = .887  | -.239<br><i>p</i> = .478 | -1.60<br><i>p</i> = .638  | -.082<br><i>p</i> = .811 |
| Parent Social Problems  |                          |                          |                           |                         | —                        | .846**<br><i>p</i> = .001 | .393<br><i>p</i> = .231   | -.042<br><i>p</i> = .903 | .257<br><i>p</i> = .445  | .345<br><i>p</i> = .298   | .025<br><i>p</i> = .942  |
| Parent Atten. Problems  |                          |                          |                           |                         |                          | —                         | .409<br><i>p</i> = .212   | -.180<br><i>p</i> = .597 | .313<br><i>p</i> = .348  | .374<br><i>p</i> = .258   | -.092<br><i>p</i> = .788 |
| Parent Internalizing    |                          |                          |                           |                         |                          |                           | —                         | -.216<br><i>p</i> = .523 | -.132<br><i>p</i> = .348 | -.152<br><i>p</i> = .698  | -.063<br><i>p</i> = .854 |
| Teacher Withdrawn       |                          |                          |                           |                         |                          |                           |                           | —                        | -.086<br><i>p</i> = .791 | .025<br><i>p</i> = .938   | .706*<br><i>p</i> = .01  |
| Teacher Social Problems |                          |                          |                           |                         |                          |                           |                           |                          | —                        | .949**<br><i>p</i> < .001 | .170<br><i>p</i> = .597  |
| Teacher Atten. Problems |                          |                          |                           |                         |                          |                           |                           |                          |                          | —                         | .145<br><i>p</i> = .653  |
| Teacher Internalizing   |                          |                          |                           |                         |                          |                           |                           |                          |                          |                           | —                        |

\* Correlation is significant at the .05 level (2-tailed).

\*\* Correlation is significant at the .01 level (2-tailed).

cross-informant correlation reported, levels of association were as high or higher than those reported in the CBCL and TRF test manuals, suggesting that rater reliabilities were as expected for these samples.

Analysis of associations among mother's educational level, behavioral ratings, and children's performance on standardized nonverbal and language tests revealed two distinct patterns across the two groups. For children in the SLI group, behavioral ratings were more closely associated with their standardized test performance. In contrast, socioemotional ratings were more closely associated with mother's education level for children in the AM group.

For the SLI group, teacher reports of Attention Problems were moderately and significantly correlated

to CMMS and TOLD-P:2 standard test scores (*r* values: -.60 to -.65), suggesting that children who scored lower on the nonverbal and language tests were reported as having more Attention Problems by their teachers. Mother's education level was also moderately correlated with the standardized measures of nonverbal and language performance for the SLI group (*r* values: .60 to .76). In contrast, significant associations between standardized test performance and behavioral ratings and standardized test performance and mother's education level were not observed in the AM group.

In the SLI group, there were no significant associations between mother's education level and any of the socioemotional measures. This is interesting because, as a group, mothers of the children in the SLI group



Table 6. Associations among parent ratings, teacher ratings, and participant characteristics: AM Group.

| Mother's education level | Parent                  |                         |                            |                          |                          |                           | Teacher                   |                           |                           |                           |
|--------------------------|-------------------------|-------------------------|----------------------------|--------------------------|--------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
|                          | CMMS                    | TOLD-P:2                | Withdrawn                  | Social Problems          | Attention Problems       | Internalizing             | Withdrawn                 | Social Problems           | Attention Problems        | Internalizing             |
| Mother's Ed. Level       | .447<br><i>p</i> = .072 | .228<br><i>p</i> = .380 | -.628**<br><i>p</i> = .007 | -.304<br><i>p</i> = .235 | -.061<br><i>p</i> = .817 | -.413<br><i>p</i> = .099  | -.510*<br><i>p</i> = .043 | -.022<br><i>p</i> = .936  | -.024<br><i>p</i> = .930  | -.520*<br><i>p</i> = .039 |
| CMSS                     | —                       | .366<br><i>p</i> = .148 | -.294<br><i>p</i> = .252   | -.109<br><i>p</i> = .677 | -.119<br><i>p</i> = .650 | .304<br><i>p</i> = .236   | -.368<br><i>p</i> = .161  | -.084<br><i>p</i> = .756  | -.106<br><i>p</i> = .697  | -.300<br><i>p</i> = .259  |
| TOLD-P:2                 | —                       | —                       | -.282<br><i>p</i> = .272   | .177<br><i>p</i> = .497  | -.149<br><i>p</i> = .568 | -.369<br><i>p</i> = .145  | -.241<br><i>p</i> = .369  | -.343<br><i>p</i> = .194  | -.222<br><i>p</i> = .408  | -.315<br><i>p</i> = .234  |
| Parent Withdrawn         | —                       | —                       | —                          | .425<br><i>p</i> = .089  | .023<br><i>p</i> = .930  | .833**<br><i>p</i> < .001 | .078<br><i>p</i> = .775   | -.030<br><i>p</i> = .912  | -.217<br><i>p</i> = .419  | .158<br><i>p</i> = .558   |
| Parent Social Problems   | —                       | —                       | —                          | —                        | .615*<br><i>p</i> = .009 | .413<br><i>p</i> = .100   | .015<br><i>p</i> = .955   | .403<br><i>p</i> = .122   | .144<br><i>p</i> = .594   | .078<br><i>p</i> = .774   |
| Parent Atten. Problems   | —                       | —                       | —                          | —                        | —                        | .168<br><i>p</i> = .518   | .088<br><i>p</i> = .746   | .645**<br><i>p</i> = .007 | .715**<br><i>p</i> = .002 | .124<br><i>p</i> = .649   |
| Parent Internalizing     | —                       | —                       | —                          | —                        | —                        | —                         | .233<br><i>p</i> = .385   | .183<br><i>p</i> = .498   | -.112<br><i>p</i> = .680  | .355<br><i>p</i> = .177   |
| Teacher Withdrawn        | —                       | —                       | —                          | —                        | —                        | —                         | —                         | .569*<br><i>p</i> = .021  | .323<br><i>p</i> = .222   | .889**<br><i>p</i> < .001 |
| Teacher Social Problems  | —                       | —                       | —                          | —                        | —                        | —                         | —                         | —                         | .778**<br><i>p</i> < .001 | .574*<br><i>p</i> = .020  |
| Teacher Atten. Problems  | —                       | —                       | —                          | —                        | —                        | —                         | —                         | —                         | —                         | .295<br><i>p</i> = .268   |
| Teacher Internalizing    | —                       | —                       | —                          | —                        | —                        | —                         | —                         | —                         | —                         | —                         |

\* Correlation is significant at the .05 level (2-tailed).

\*\* Correlation is significant at the .01 level (2-tailed).

were less well educated than the mothers of the children in the age control group. Even so, mother's education level does not predict teacher's judgments for the group's sociobehavioral competence. In contrast, mother's education level was moderately and significantly correlated with both parent and teacher ratings of Withdrawn behavior problems and teacher ratings of Internalizing problems for children in the AM group (*r* values: -.51 to -.63). This result suggests that children in the AM group whose mothers had relatively lower levels of education tended to have more difficulty in the areas of social withdrawal and inhibition. This association between mother's educational level and internalizing behavior problems did not characterize children in the SLI group.

## Discussion

In this research note, the stability and situational specificity of standardized behavioral ratings of children with SLI was investigated with parents and teacher ratings at the end of kindergarten, first grade, and second grade. To do this, we collected additional data on the previously reported longitudinal samples of Redmond and Rice (1998). The results of this follow-up investigation suggest that the social, emotional, and behavioral symptoms of children with SLI show change over time, especially in the academic context. For example, common concerns from kindergarten and first-grade teachers about withdrawn, internalizing, atten-

tion, and social problems did not appear on parental ratings collected over this time period. Similarly, ratings collected at second grade from both teachers and parents did not differentiate the SLI group from the AM group in regard to the number of children in the clinical range. The important exception to the generalization of mitigation of behavioral concerns over time was in teachers' reports of peer acceptance, as indexed by the TRF's Social Problems scale. Children with SLI demonstrated elevated levels of difficulty in this area over the three sampling times. It is interesting to note that the Social Problems scale is the only scale on the CBCL and TRF that does not correspond directly to a psychiatric category listed in the DSM-IV taxonomy (e.g., Attention Deficit Hyperactivity Disorder, Dysthymia, Conduct Disorder). This supports our earlier characterization that the socioemotional behaviors of children with SLI are not homologous to symptoms associated with various psychopathologies (Redmond & Rice, 1998).

It remains an empirical question whether or not the observed trend of decreasing teacher concerns in the areas of withdrawn, internalizing, and attention problems would continue over the course of the academic experience of children with SLI. Studies of young adults with positive histories of SLI report normal levels of social adjustment (e.g., Records, Tomblin, & Freese, 1992; King, Jones, & Lasky, 1982) and suggest that this might be the case. Another possibility is that the constellation of teacher-reported behavior problems associated with SLI at kindergarten and first grade might be a stable feature of these children's socioemotional responses to verbally demanding situations. Thus, across different contexts and over time, we would expect compensatory behaviors to erupt and recede in response to changes in the academic or social situation. For example, behavior problems, such as social withdrawal and inhibition, that were present in many of the children with SLI during the transition from preschool into kindergarten may reappear during other significant transitions, such as the changes in classroom and peer environments that take place during middle school or high school.

Although not indicated by our data, another possibility is that the school-based behavior problems of some children with SLI might change over time. For example, some children with SLI may enter school with high levels of social withdrawal or inhibition that may change to more aggressive and externalizing behavior problems as they encounter repeated episodes of school failure and peer rejection. In a recent epidemiological study of 164 second-grade children with language impairments, Tomblin, Zhang, Buckwalter, and Catts (2000) found that teacher ratings of aggressive or externalizing behavior problems, and not internalizing problems, differentiated

children with language impairments from their typically developing peers. These investigators also found that the association of behavior problems with SLI required the mediation of reading disability. In other words, children with SLI who were not reading disabled were at no greater risk for behavior problems than the typically developing control children.

This study compared parent and teacher evaluations of children's behaviors during early elementary grades. We found that significant differences between informant perceptions of children with SLI lessened over time. By the end of second grade, teacher and parent ratings were approaching consensus in evaluating the socioemotional behaviors of children in the SLI group as comparable to their unaffected peers. One important exception to this generalization was that parents and teachers did not approach consensus on Social Problems. However, our data are limited, and firm conclusions on the socioemotional development of children with SLI await further investigation. For example, important aspects of socioemotional competence may not be adequately captured by adult ratings of children's behaviors. Around second grade, children become very attuned to each other and begin to form powerful peer judgments of social acceptability. It will be important for future studies to investigate the developmental trajectory of peer evaluations of children with SLI and to determine if those evaluations change during the elementary grades. As the current findings demonstrate, the social construction of children with SLI is likely to vary by observer (teacher; parent) and by developmental level (kindergarten, first grade, second grade). It is likely that the consideration of the peer context will further reveal the extent of the social consequences of SLI.

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## **Stability of Behavioral Ratings of Children with SLI**

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