

Parent and Teacher Report of Social Skills in Children With Autism Spectrum Disorders

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Social skills deficits are a core and defining feature of pervasive developmental disorders (American Psychiatric Association [APA], 2000). Pervasive developmental disorders is an umbrella term that is more commonly referred to as autism spectrum disorders (ASD). The five specific disorders included in ASD are autistic disorder, Rett's disorder, childhood disintegrative disorder, Asperger syndrome, and pervasive developmental disorder not otherwise specified (PDD-NOS). In addition to social skills deficits, these disorders are characterized by severe and pervasive impairment in communication. Also present are stereotyped patterns of behavior, interests, and activities. The qualitative impairments that define these disorders are discrepant relative to the individual's developmental level or mental age (APA, 2000).

The importance of social development on outcomes in adulthood has been recognized for decades. [Schalock and Harper \(1978\)](#), [Greenspan and Shoultz \(1981\)](#), and [Huang and Cuvo \(1997\)](#) conducted studies on the outcomes of individuals with mild or moderate mental retardation. The overwhelming consensus was that the major cause of unsuccessful employment was a lack of social skills and inappropriate social behaviors rather than issues related to emotional disturbance or antisocial behavior. Similar arguments have been made for adults with autism ([Schopler & Mesibov, 1983](#)).

Longitudinal research by [Sigman et al. \(1999\)](#) revealed a direct relation between cognitive and language outcomes and the social behaviors of adolescents with autism. [Ingersoll, Schreibman, and Stahmer \(2001\)](#) found that children with autism who were rated as having high social avoidance had poorer language outcomes

ABSTRACT: Purpose: The purpose of this study was to examine the agreement between parent and teacher perceptions of specific social behaviors in children with autism spectrum disorders (ASD).

Method: Informant ratings were generated concerning 45 children with ASD between the ages of 5 and 14 years who were enrolled in social skills groups at 2 Midwestern outpatient autism treatment centers.

Results: Moderate agreement was observed between parents and teachers for the overall social skills rating scores ($r = 0.34$; $p < 0.05$), but there was little agreement on specific social items. Distinct patterns of skill profiles emerged. Parents consistently provided

relatively higher ratings on items that pertained to initiating interactions. Teachers, on the other hand, consistently provided higher ratings on items related to responding to and maintaining interactions. Parents and teachers agreed most often on items of affective understanding and perspective taking.

Conclusion: These findings suggest that specific social behaviors may be context dependent, indicating the need for a multi-informant approach to provide a more complete profile of a child's social abilities, which is necessary for generating a more effective treatment plan.

KEY WORDS: autism, social skills, parent, teacher report

compared to children with less social avoidance. Peer engagement, as a specific social behavior, appeared to play a pivotal role in enhancing adolescents' cognitive and language outcomes.

Although impaired social skills are a key feature of ASD, research indicates that specific social symptomatology varies from person to person (Beglinger & Smith, 2005; Borden & Ollendick, 1994), an observation that was first made by Wing and Gould (1979) almost 30 years ago. What is surprising is the lack of information concerning the reliability, consistency, and specificity of the social presentation across environments, such as home and school. This information is important because practitioners such as diagnosticians, clinicians, and school-based interventionists often rely on reports or rating scales from people such as parents and teachers to supplement assessment tools (Lecavalier, Aman, Hammer, Stoica, & Mathews, 2004). A high congruency between raters would provide clinicians with increased confidence using a single informant approach and enable them to assume that social competency skills are similarly demonstrated and stable across environments. Constantino and colleagues (2003) examined this issue and evaluated autistic symptoms using the Social Responsiveness Scale (SRS). They found a high degree of correlation between mother, father, and teacher report, suggesting universality in the expression of autism-specific traits and accuracy in single informant reporting by an adult who has frequently observed the child in naturalistic social settings with peers (Constantino et al., 2003).

Other studies have found differences between raters depending on the role of the rater in the child's life. Achenbach, McConaughy, and Howell (1987) conducted a meta-analysis of 119 studies of emotional and behavioral problems in children and found modest agreement between informants playing a similar role with respect to the child. However, they also reported that the agreement between individuals playing a similar role (teacher-teacher) was much higher than the agreement between individuals playing different roles, such as parent-teacher. In another study of 505 autistic and non-autistic preschool children, Rapin, Steinberg, and Waterhouse (1999) found modest interrater agreement on measures of behavior across typical raters (parents, teachers, neurologists, and psychiatrists) at different times and in different settings. Szatmari, Archer, Fisman, and Streiner (1994) studied 83 high-functioning preschoolers with ASD and found better agreement between parents and teachers on measures of adaptive skills compared to measures of autism symptomatology. These findings have been interpreted as evidence that observers are sensitive to different aspects of behavior and that the differences in their ratings reflect true differences rather than an unreliable instrument (Rapin et al., 1999).

If there is indeed low congruency between raters, this information would lend support for the need for multiple cross-informants in order to develop a complete picture of a child's abilities across environments. In a study examining the correspondence of ratings of social competence in children and adolescents with typical development, Renk and Phares (2004) argued specifically for the use of multiple informants. They found that the highest congruency was observed between teachers and peers and postulated that this finding may be due, in part, to the setting. They concluded that behavior is highly influenced by situational specificity. In their study of parent and teacher reports of pragmatic aspects of communication on children with pervasive or specific developmental disorders, using the Children's Communication Checklist (CCC), Bishop and Baird (2001) found low congruency between raters. However, they did find a relationship between the ratings and the

diagnosis and interpreted the discrepancy in ratings of social communication abilities as evidence that these skills are context dependent. The results of these studies suggest that to obtain a complete picture of a child's social functioning, which may be particularly important for treatment planning, a single informant would need to observe the child in every possible setting. Because this is not feasible in a clinical or school setting, professionals must make use of other methods that include cross-informants.

In summary, although there is confirmation to support adequacy of a single informant approach for the identification of autism-specific behaviors (Constantino et al., 2003), there is equally strong evidence for the need for multiple informants to identify specific skills and abilities (Bishop & Baird, 2001; Renk & Phares, 2004). Differentiating abilities that are context bound from those that are stable is essential for treatment progress monitoring and follow-up (Yoder, 2008). Yoder and McDuffie (2006) offered three criteria for practitioners to use when judging whether an ability is learned: stability, generalization, and maintenance. Therefore, information on the stability of skills across various contexts is essential for effective treatment planning and progress monitoring (Yoder, 2008), and an accurate description of social behaviors is critical for development of appropriate intervention plans and measurement of treatment progress (i.e., stability, generalization) and follow-up (i.e., maintenance).

The purpose of this study was to examine the agreement between parent and teacher perceptions of specific social behaviors in children with ASD. Previous studies primarily examined agreement of autistic symptoms rather than specific social behaviors. This study contributes to the body of knowledge by examining the agreement of specific social behaviors for the purpose of planning for intervention. Although it was expected that disagreements in ratings between parents and teachers would be observed, as suggested by the work of Bishop and Baird (2001), the pervasive social impairment that is evident in children with ASD would suggest otherwise, as supported by the work of Constantino et al. (2003). Therefore, no directional hypothesis was proposed for this exploratory study.

METHOD

Participants

This study is unique from the majority of studies of social skills because the participants were referred to a clinical treatment program for intervention rather than recruited for a laboratory-based research study. Using participants who were referred for a clinical treatment program has been suggested as important for translational research (Hoagwood, Burns, Kiser, Ringeisen, & Schoenwald, 2001). The treatment centers were located at two Midwest regional autism specialty centers. Data were collected from the medical charts of 45 children and adolescents who were referred for social skills intervention. All participants had a clinical diagnosis of autistic disorder, Asperger syndrome, or PDD-NOS according to the *Diagnostic and Statistical Manual of Mental Disorders—Fourth Edition* (APA, 2000). Of these, most of the participants had a clinical diagnosis of Asperger syndrome (see Table 1). The participants ranged in age from 5 to 14 years, with a mean age of 10.0 years ($SD = 2.4$ years), and were referred by physicians, allied health professionals, or parents for participation in social skills group

Table 1. Study participant characteristics.

Characteristic	N	%
Diagnosis		
Autistic disorder	15	33.3
Asperger syndrome	24	53.3
Pervasive developmental disorder not otherwise specified	6	13.3
Gender		
Male	39	86.7
Female	6	13.3
Comorbid diagnosis ^a		
None	26	57.8
Depressive disorder	2	4.4
Anxiety disorder	2	4.4
Attention deficit hyperactivity disorder (ADHD)	3	6.7
ADHD and depressive or anxiety disorder	3	6.7
Depressive and anxiety disorder	1	2.2
Tourette's	2	4.4

^aData were missing on 10 participants.

intervention. Full-scale IQ scores were available from the medical records of 35 participants. Because the study was a retrospective chart review of individuals who had been referred for a clinic-based social skills group, 10 children did not have IQ scores included in the available record. The available IQ scores ranged from 66 to 132, with a mean of 93.3 ($SD = 17.9$). The groups with and without IQ data did not differ with respect to the distribution of age, gender, or *DSM-IV-TR* diagnosis or the presence of a comorbid diagnosis. Review of the medical charts also revealed that almost 25% of the sample had a comorbid mental health diagnosis described in the medical chart (see Table 1). The study was approved by the institutional review boards of Cincinnati Children's Hospital Medical Center and the University of Louisville.

Questionnaires

As part of the routine intake process before intervention, parents were asked to complete a social skills questionnaire for their child with ASD for the purpose of treatment planning. They were also asked to give a questionnaire to the child's primary teacher in order to obtain information on skills that were observed at school. No additional guidelines were given for questionnaire completion. Questionnaires came from the TRIAD Social Skills Assessment (TSSA; Stone, Ruble, Coonrod, Hepburn, & Pennington, 2003). The TSSA is a criterion-based, multi-informant tool that is used to describe the social behaviors of individuals with ASD. The questionnaire is divided into four areas of social development: (a) ability to understand emotions and perspectives of others (affect), (b) ability to initiate interactions, (c) ability to maintain interactions, and (d) ability to respond to others. These four subscales were rated using a Likert scale from 1 (*not very well*) to 4 (*very well*). The 35 items of the TSSA questionnaires are available on request and are briefly described in Figure 1. The TSSA questionnaire was used by these centers as a supplemental descriptive tool to develop an individual profile of social behaviors in order to aid in planning therapeutic intervention. Ruble, Willis, and Crabtree

(in press) described the use of the TSSA for social skills group planning.

Analysis

The internal consistency of the TSSA was calculated separately for parent and teacher ratings using Cronbach's alpha. The sum of the scores for each of the four subscales (understanding emotions and perspectives of others; initiating interactions; maintaining interactions; and responding to others) was determined and the mean score was calculated. Pearson product-moment correlation coefficients were calculated to determine the strength of the relationship between parent and teacher subscale summary scores. Each item was then evaluated using a weighted kappa statistic (κ_w) as a measure of agreement between the parent and teacher ratings on the 4-point scale. The mean difference between parent and teacher rating was plotted for each item. To determine if age affected the observed parent-teacher differences, the mean difference for each item was calculated separately for children ages 5 through 9 years ($n = 18$) and children ages 10 through 14 years ($n = 27$) and was compared with a Wilcoxon test.

RESULTS

Reliability as measured by internal consistency was 0.92 for parent responses and 0.94 for teacher responses. Figure 2 shows the mean ratings of parent and teacher perceptions. Skills related to understanding affect and to initiating and maintaining interactions with others received the lowest mean ratings by both parents and teachers. Responding to others was an area of relative strength. Correlation coefficients for subscale total scores and total scores from the assessment are reported in Table 2. Correlations were moderate to weak, with $r \leq 0.38$. However, correlations between parent and teacher report for total score ($r = 0.34$), ability to understand emotions and body language ($r = 0.38$), and ability to respond ($r = 0.32$) reached statistical significance at $p < 0.05$.

As shown in Figure 1, the κ_w was examined to determine the extent to which parents and teachers agreed or disagreed on each of the 35 items. In addition, the mean of the difference between parent and teacher rater pairs was plotted to identify items that parents scored consistently higher compared to items that teachers scored higher. The positive scores (scores > 0) reflect higher parent ratings; the negative scores (scores < 0) reflect higher teacher ratings.

The κ_w was uniformly low for all items, indicating poor agreement between parents and teachers on the ratings of the individual skills. The best agreement was for understanding body language ($\kappa_w = 0.41$), understanding facial expression ($\kappa_w = 0.38$), and understanding others' thoughts ($\kappa_w = 0.33$), which are all items in the affective understanding subscale. Parents consistently rated the children higher on measures involving the initiation of interactions, whereas teachers rated items pertaining to maintaining and responding to interactions higher. There was no consistent pattern of parents or teachers rating children higher on the affective understanding subscale, which showed the highest correlation (Table 2) and had the three items with the best agreement.

For most items, there were no significant differences in parent-teacher ratings by age group. However, there were three notable exceptions. For the item designed to measure a child's ability to

Figure 1. Parent and teacher agreement on specific TRIAD Social Skills Assessment (Stone, Ruble, Coonrod, Hepburn, & Pennington, 2003) questionnaire items and mean difference scores.

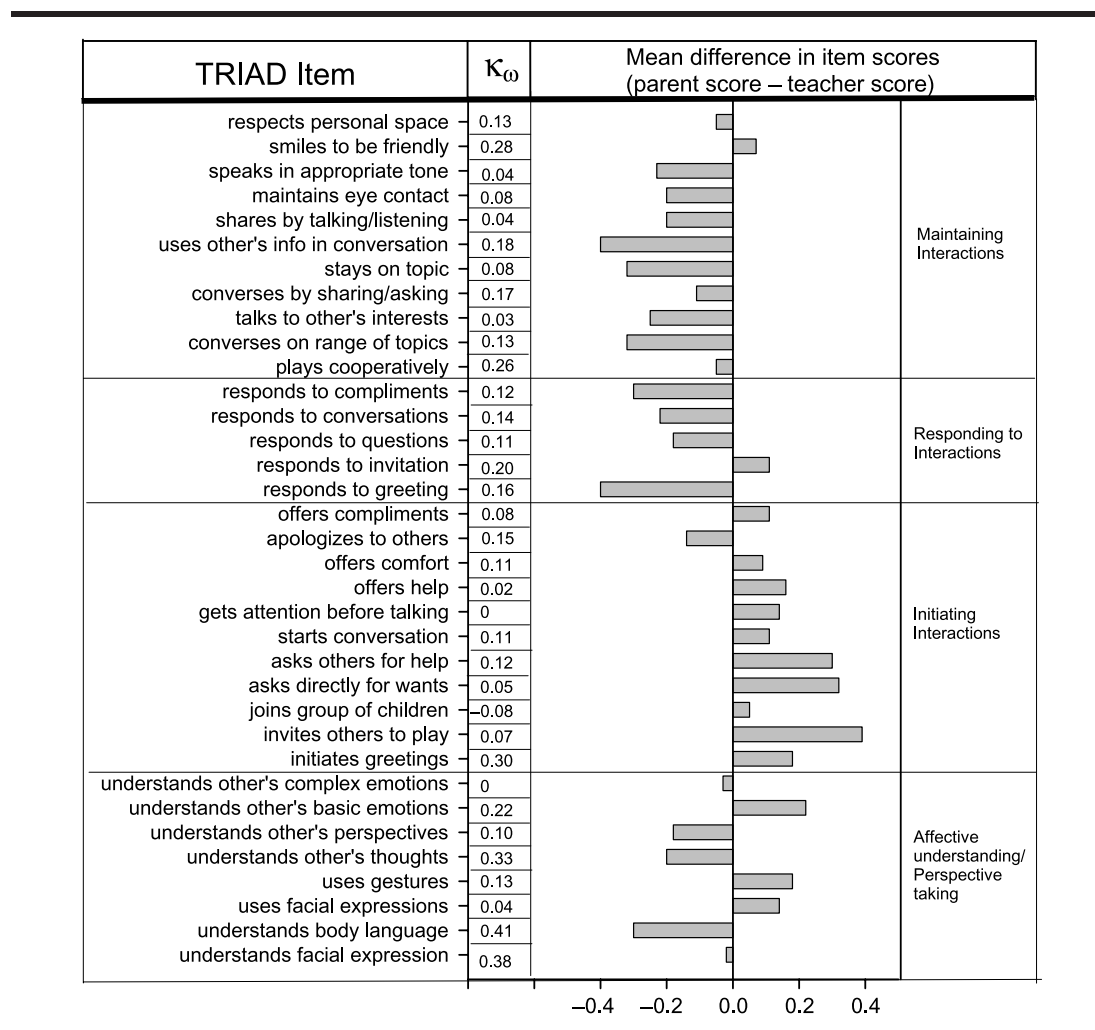
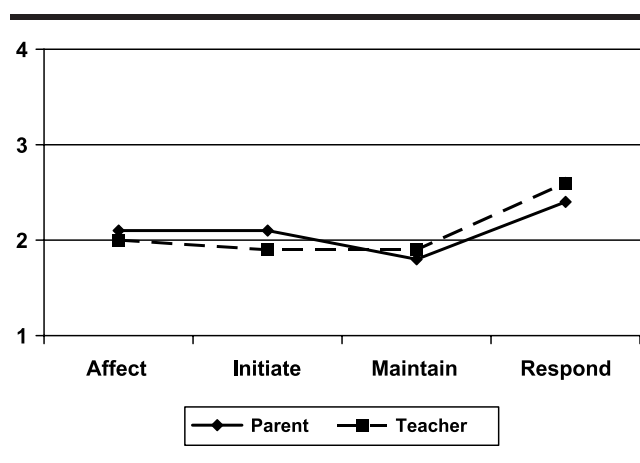


Figure 2. Mean subscale scores reported by teacher and parents.



offer comfort, teachers of young children rated the skill higher than parents did ($\kappa_w = -0.33$), whereas for older children, parents rated the skill higher than teachers did ($\kappa_w = 0.38$) ($p = 0.03$). For the younger group, teachers rated children's ability to respond to invitations higher than parents did ($\kappa_w = -0.22$); in the older group, parents rated the skill higher ($\kappa_w = 0.34$) ($p = 0.05$). The same

Table 2. Pearson product-moment correlations of parent and teacher ratings by subscale total score (2-tailed).

	Teacher report		Parent report		
Total score	0.34*	0.35*	0.27	0.27	0.21
Affect	0.26	0.38*	0.24	0.10	0.13
Initiate	0.31	0.22	0.31	0.25	0.11
Respond	0.31	0.15	0.30	0.32*	0.14
Maintain	0.24	0.28	0.13	0.28	0.15

* $p < .05$.

pattern was observed for response to questions, with teachers rating higher in the younger group ($\kappa_o = -0.56$) compared to the older group ($\kappa_o = 0.07$) ($p = 0.03$).

DISCUSSION

This study of 45 children with ASD demonstrated patterns of parent–teacher differences in the rating of social skills. Parents’ perceptions of skills led to consistently higher ratings than those of teachers on items pertaining to initiating interactions, whereas teachers’ perceptions resulted in consistently higher ratings than parents on items related to maintaining and responding to interactions (Figure 1). These findings of differences in parent and teacher perceptions in the rating of social skills are similar to reports for other measures of behavior that were rated by different types of informants (Achenbach et al., 1987; Rapin et al., 1999). Agreement based on a range of diverse behaviors tended to be higher than agreement on specific behaviors (Rapin et al., 1999).

Although modest correlations were observed between parent and teacher global perceptions of the total TSSA items and the subscale ratings for affective understanding and response to interactions, the low κ_o values for all items indicates poor agreement on the specific items contributing to the subscale and total scores. Furthermore, within these correlated values, there are clearly systematic differences in the way that teachers and parents perceive social skills, as evidenced by the patterns shown in Figure 1. Future studies on the influence of perceptions of abilities are important (such as the amount of time a teacher has known or taught child), as is direct observation of actual skills.

Interestingly, parents consistently rated their child as more able to initiate interactions, and teachers consistently rated the child as more able to respond to and maintain interaction. It may be that because this was a sample of children who had been specifically referred for social skills intervention, parents of this sample perceived aspects of the child’s social skills as more impaired. These findings may also reflect the behavioral expectation in the environment. For home settings, children may be more comfortable and initiate more frequently with family members. The initiations rated highest by parents included requesting, asking others to play, and getting attention or assistance. These types of initiations with familiar family members may not be as likely to lead to expanded interactions, and parents may be less likely to observe the child in social situations with a broader range of peers for more extended periods of time. Perhaps teachers are less likely to observe students in less structured settings, in which the student may have increased opportunities to initiate. However, teachers consistently rated the ability to maintain interactions slightly higher than did parents. It could be that although there were fewer initiations observed in school, there may be more opportunity to expand those interactions due to topics that were introduced in the classroom or by peers. Parents and teachers may also have different expectations and different thresholds for considering whether or not a behavior is present. That is one possible explanation for the observed difference in parent–teacher ratings between younger (<10 years) and older children on items relating to offering comfort and responding to invitations and questions. The difference between parent and teacher

ratings may have other collateral effects as well. Szatmari et al. (1994) found that the degree of difference in parent and teacher ratings was related to the amount of stress that was experienced by parents. This factor was not evaluated in this study but would be important for future research.

Most interestingly, the strongest agreement between parents and teachers was on items pertaining to affective understanding and perspective taking. It may be that these skills represent more stable abilities that remain relatively consistent across environments rather than context-bound abilities that are variable across settings. The characterization of specific social behaviors as unstable or context bound has important implications for intervention. If indeed some social behaviors are a function of the environmental context, then these social behaviors may be particularly amenable given particular types of environmental input. Further, plans for generalization and maintenance of skill development are essential (Yoder, 2008; Yoder & McDuffie, 2006).

Social skills interventions are receiving much attention, and although there is a need for more research, studies suggest that social skills treatments are promising (Barnhill, Cook, Tebbenkamp, & Myles, 2002; Barry et al., 2003; Bauminger, 2007; Crager & Horvath, 2003; Hwang & Hughes, 2000; Kroeger, Schultz, & Newsom, 2007; Lopata, Thomeer, Volker, & Nida, 2006; Ruble et al., 2008; Tse, Strulovitch, Tagalakakis, Meng, & Fombonne, 2007). The findings from this study substantiate the need for specific, rather than global, approaches to social skills measurement and treatment. The theory that discreet social behavior may be context bound versus stable and generalized provides a strong argument for the use of multiple informants in assessing social functioning.

Limitations of this study include sample size and missing data. The sample included children with a range of diagnoses, which is important for generalization but limiting for data analysis. All participants were referred to a social skills group program for children with high-functioning autism and Asperger syndrome, and the perceptions of their parents or teachers may not be representative of all children with high-functioning autism or Asperger syndrome. Further, teachers may be targeting social skills at school, which may explain some differences in reporting. Direct measures of cognitive function were not available for all participants, but those without IQ data did not differ from the participants with IQ data on age, gender, or diagnosis. Therefore, findings from participants with these missing data are not likely to impact results.

CONCLUSION

These preliminary data indicate that the perceptions of the social skills of children with ASD differed between parents and teachers. Some social skills may be context dependent and, therefore, be better measured across a range of settings to provide a complete picture of an individual child’s abilities. Although these findings support the conclusion of Rapin et al. (1999), that observers are sensitive to different aspects of behavior and that their ratings are likely to be complementary, these results also suggest that some skills may be particularly unstable and variable across settings while others are generalized and less context dependent.

This study identified a number of potential areas for future research. A larger scale study of randomly selected participants is necessary to validate these preliminary findings. Future research might also investigate social subtypes and the predictive validity of social interventions and outcome as well as the ability to examine other influences on the perception of social skills (e.g., diagnosis, cognitive ability, length of time that a teacher has known or taught the child, or type of teacher). However, to further the field of social skills research and intervention, there needs to be a focus on the development of psychometrically sound tools for the measurement of specific social behaviors. Furthermore, information on the influences of parent (e.g., stress) and child (IQ, gender) variables on social behaviors is important. It would be beneficial to follow children longitudinally to determine if specific social skills are more consistent and stable over time or become more or less context dependent as the children age. These issues must be addressed because accurate assessment of social skills is critical to targeting specific skills for intervention and determining the efficacy of that intervention.

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