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ORIGINAL PAPER

Perceived Social Competence and Loneliness Among Young Children with ASD: Child, Parent and Teacher Reports

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Abstract Perceived loneliness and social competence were assessed for 127 children with ASD without comorbid ID, 4–7 years old, through child self-report. Using an abbreviated version of the *Loneliness and Social Dissatisfaction Questionnaire* (LSDQ; Cassidy and Asher in Child Dev 63:250–365, 1992), the majority of children reported friendships, yet a considerable proportion also reported social difficulties. Factor analysis of the abbreviated LSDQ identified three factors, which were significantly associated with parent- and teacher-reported variables. Regression analyses revealed parent-reported social skills deficits and teacher-reported conflict in the student–teacher relationship to be associated with child-reported loneliness. Implications for practice are discussed.

Keywords Loneliness · Social competence · Child self-report · Multi-informant · Student–teacher relationships

Introduction

In early childhood, social competence can be demonstrated by success in social interactions with peers and adults, typically requiring the child to exhibit context-appropriate social behaviors. In measuring a child's social competence, a multidimensional approach has been recommended, including direct observation, teacher and parent ratings of the child's behavior and social skills, and direct assessment of social problem solving (Odom et al. 2008). The present study examined self-reported friendships and loneliness in young children with autism spectrum disorder (ASD), and how these related to aspects of children's social competence as reported by parents and teachers.

Features of ASD and Social Competence

Children with ASD have been found to exhibit reduced social skills when compared to their typically developing (TD) peers. For example, Macintosh and Dissanayake (2006) found that 4–10-year-olds with ASD exhibited poorer social skills in the domains of cooperation (e.g., sharing; adhering to rules), assertion (e.g., requesting information from others), and self-control (e.g., turn-taking; negotiating compromises) than did TD controls. Social-communication deficits among children with ASD have been found to predict peer rejection in elementary school (Laws et al. 2012). Moreover, the lack of appropriate play skills—play instead characterized by repetitive, object-oriented, and unimaginative actions—can be especially limiting for the child with ASD. The child with ASD who is too consumed with his/her restricted interest and/or playing with objects in a non-functional capacity (i.e., lacking the desire and/or skills for pretend play) may be left to play alone (Strain et al. 2008). Additionally, children with ASD are more likely to exhibit clinically significant behavior problems than their TD peers (Matson and Nebel-Schwalm 2007; Macintosh and Dissanayake 2006; Snow and Lecavalier 2011). Behavior problems in early childhood

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have been associated with negative outcomes, such as poorer peer relationships and lower quality student–teacher relationships (Blacher et al. 2009; Lyons et al. 2011).

Friendships in Childhood for Children with ASD

Children with ASD have been found to have significantly fewer reciprocal relationships than their TD peers (Howlin et al. 2004; Mazurek and Kanne 2010; Rotheram-Fuller et al. 2010). In a study aimed at understanding the social involvement of children with ASD (in grades K-5) relative to their TD peers in inclusive elementary settings, Rotheram-Fuller et al. (2010) found that TD peers were less likely to reciprocate relationships with children with ASD. Although results indicated that nearly half of the children with ASD were included in the social networks of their classroom, they were significantly more likely to be positioned on the periphery of the group or to experience more social isolation than their TD peers. In a related study, Kasari et al. (2011) found 18 % of students (ages 6–11) with ASD to have at least one reciprocal friendship, indicating that some children on the spectrum do succeed socially at school; however, this was significantly lower when compared to TD matched pairs, of whom 64 % had reciprocal friendships. Moreover, while a lower level of social understanding has been reported by children with ASD, these same children have also been shown to accurately perceive themselves as less socially able than their TD peers (Bauminger et al. 2004). Examining social networks at school, Kasari et al. (2011) found 1st–5th grade children with ASD to report fewer and poorer quality friendships at school.

Findings that children with ASD have fewer friendships in elementary school are concerning, as there is evidence suggesting that friendships between TD children and those with disabilities can be mutually beneficial (Hollingsworth and Buysse 2009). Friends can serve to model appropriate social and communication skills, which have been shown to enhance social competence in children with ASD (Odom et al. 2008). Unfortunately, problematic friendships among children with ASD may lead to increased victimization in the form of bullying and/or social isolation (Wainscot et al. 2008; Zeedyk et al. 2014). In fact, victimization among youth with ASD has been found to exceed levels among TD children and those with other disabilities (Cappadocia et al. 2011; Zeedyk et al. 2014). This is particularly concerning, as social isolation and victimization in childhood may lead to more serious problems later on, such as the development of internalizing problems and possibly even greater likelihood of suicide, which has been found to be higher among individuals with ASD when compared with their TD peers (Kato et al. 2013; Mayes et al. 2013). For these reasons, it is important to understand how children perceive their own social relationships.

Self-Reported Loneliness in Childhood

For children with typical development, self-report has proven an effective method for assessing perceptions of their social relationships at school. Asher et al. (1984) created the *Loneliness Rating Scale* and used it with TD 3rd through 5th grade students. More than 10 % of the youth surveyed felt loneliness and social dissatisfaction, and their reports were significantly negatively associated with peer ratings of best friendships and likeability. Using a slightly adapted version of the *Loneliness Rating Scale,* Cassidy and Asher (1992) assessed child loneliness and social relationships among 5–7-year-old TD children. They also found that children's own reports mapped onto peer ratings of acceptance and nominations of playmates at school. Children who fell in the top 20 % on the self-reported measure of loneliness (i.e., those who were the most lonely) were found to be less pro-social, more aggressive, and more shy than the rest of the sample, according to peer and teacher reports. These children were also found to be more disruptive according to teacher report. Importantly, results of this study indicated that the self-report measure of loneliness was psychometrically sound for use with young TD children. In the present study, this measure has been further adapted for use with young children with ASD without comorbid intellectual disability (ID) to assess its utility for this population.

For children with ASD, there has been some study of loneliness. While children with ASD have been found by some researchers to misperceive their social involvement and inaccurately report on their sense of loneliness (Chamberlain et al. 2007), Bauminger and Kasari (2000) found validity in the use of the *Loneliness Rating Scale* (Asher et al. 1984) among 8–14-year-olds with ASD. These children reported greater loneliness than TD controls. In another study utilizing the *Loneliness Rating Scale* with 11–14-year-olds with ASD and co-occurring anxiety, Storch et al. (2012) found 41 % of the youth reported loneliness levels one or more standard deviations above the normative rate. Moreover, self-reported loneliness in this study was found to be significantly associated with self-reported victimization and parent-reported social cognition and social communication deficits. In other studies, 21 % of adolescent boys with ASD reported themselves to be often or always lonely (Lasgaard et al. 2010), and among 7–14-year olds with ASD, self-reported loneliness and anxiety were significantly related (White and Roberson-Nay 2009). Collectively, these findings suggest that loneliness can be assessed in children with ASD as young as

age 7. The present study obtained self-reports of loneliness and friendships from 4 to 7-year old children with ASD without comorbid ID; if such reports are valid, intervention to counter loneliness could begin in early childhood.

Multi-informant Approaches to Assessing Social Competence Among Children with ASD

Multi-informant approaches are useful to assess agreement between youth with ASD and others with regard to social competence. Falkmer et al. (2012) reported high agreement of 9–13-year-old students with ASD and their teachers on some statements about the student's social life (e.g., ≥90 % agreement on "It is hard for me to get friends") and moderate agreement on others (e.g., 58 % agreement on "I am bullied at school"). Johnson et al. (2009) found that youth with ASD (ages 9–18) described themselves as having significantly more empathetic features (e.g., understanding the intentions/emotions of others) than their parents attributed to them. Kalyva (2010) found that adolescents with ASD assessed their own social skills more favorably than did their parents or teachers. In the present study, we expanded upon prior findings that examined social competence and loneliness among older children and adolescents with or without ASD by assessing self-reports of friendship and loneliness in a sample of children with ASD without comorbid ID in the early school years.

Importance of the Student–Teacher Relationship in Promoting Social Competence

Much research on social development in children with ASD at school has focused on the children's relationships with their peers (Bauminger et al. 2010; Kasari et al. 2011). Yet, there is a growing research base on the social implications of the student–teacher relationship (STR) for TD children (Pianta and Stuhlman 2004; Troop-Gordon and Kopp 2011; White and Jones 2000). Positive teacher reports of their relationships with students have been linked to youths' increased social competence (e.g., social inclusion, pro-social behaviors—sharing, helping), reduced behavior problems, and reduced victimization and aggression (Howes 2000; Hughes and Kwok 2006; Pianta and Stuhlman 2004; Troop-Gordon and Kopp 2011). While there are limited studies of STRs with youth with ASD, a small study (N = 12) by Robertson et al. (2003) found that students who had poorer quality STRs exhibited higher behavior problems and experienced more social exclusion in school. Studies comparing young children with ASD or ID with TD children, have found that the former have significantly poorer relationships with the teachers, characterized by more conflict and less closeness (Blacher et al. 2009, 2014; Eisenhower et al. 2015). In the present study, we examined the relationships between teacher reported STRs and child social competence and loneliness.

Present Study

The present study utilized the *Loneliness and Social Dissatisfaction Questionnaire* (LSDQ; Cassidy & Asher), to ask children with ASD, 4–7 years old, to report on their own social relationships at school. We explored four primary research questions: (1) How do young children with ASD perceive their own friendships and loneliness at school, and do perceptions vary as a function of child age? (2) How many reliable and interpretable factors can be extracted from the LSDQ? (3) How are child-reported factors of loneliness and social competence related to contemporaneous parent-and teacher reports of child social competence (e.g. social skills, communication abilities) and student–teacher relationship quality (STR)? and (4) To what extent are these parent and teacher ratings of child social competence and STRs predictive of child-reported loneliness and social competence?

Methods

Participants

Participants were 127 children (mean age = 5.7 years, *SD* = 1.07) with ASD who were involved in a larger study examining the transition to early schooling for children with ASD and their families. Recruitment targeted high functioning children with an existing diagnosis on the autism spectrum, ages 4–7, and their caregiving parents and teacher. Children were included in this study if their IQs were above 70. The mean child IQ was 95.2 (*SD* = 13.2). To further describe the sample, we divided younger (4–5 year olds) and older (6–8 year olds) children into two groups. The two age groups did not differ significantly by IQ.

Children were in preschool (39 %), kindergarten (22 %), first grade (28 %), second grade (6 %), and combined grade (5 %) classrooms. Child race was based on an open-ended parent-report item later aggregated into categories; children were: 4 % Asian-American, 4 % Black/African-American, 65 % White, non-Hispanic, 5 % Latino/Hispanic, 19 % bi-/multi-racial, and 3 % other. Teachers reported that 68 % of participating children were in general education settings for more than 50 % of the day. Parents reported that 84 % of the children had

received some early intervention services prior to entering kindergarten.

One parent per child (85 % biological mothers) participated. Most parent respondents were married (81 %), and had at least a 4-year college degree (63 %). Seventy-two percent of the families had annual household incomes above $65,000. Families were from a large Northeastern metropolitan area (42 %) and urban Southern California (58 %), and were recruited through online and print advertisements, local school districts, clinicians, autism resource centers, intervention agencies, and parent support groups in both locations.

Participating teachers (N = 107) were from public (88 %) and private (12 %) schools. Teachers were 90 % female with an average of 15 years of teaching experience ($SD = 9$). The majority of teachers (65 %) had a Master's degree.

Demographic and Diagnostic Measures

Demographics

Background information about the child and family (parent report) and the teacher and school (teacher report) was obtained through demographic surveys.

ASD Diagnosis

To determine whether child participants met criteria for ASD, the Autism Diagnostic Observation Schedule (ADOS; Lord et al. 2000) was administered to all children. The ADOS is a semi-structured, standardized assessment of communication, social interaction, and stereotyped behaviors or restricted interests. It consists of four modules, each of which is appropriate for children and adults of differing developmental and language levels. The ADOS yields a threefold classification: Not on the Autism Spectrum, On the Autism Spectrum, and Autism.

Cognitive Functioning

Children's cognitive ability was measured with the Weschler Preschool and Primary Scales of Intelligence-Third Edition (WPPSI-3; Wechsler 2002), an instrument with sound psychometric properties. The WPPSI yields an IQ score with a $M = 100$ and $SD = 15$. A calculated Full Scale IQ score was computed from a short form of the WPPSI, which included matrix reasoning, vocabulary, and picture completion subtests. This three-subtest version, though abbreviated, has demonstrated predictive validity ($r = .90$) and adequate reliability ($r = .95$) as an indicator of cognitive ability (Sattler and Dumont 2004).

Study Measures

Child Loneliness and Social Competence (Child Report)

An abbreviated version of the Loneliness and Social Dissatisfaction Questionnaire (LSDQ; Cassidy and Asher 1992) was verbally administered to children. The original measure contained 24 items [16 items of interest (e.g., "Are you lonely at school?") and 8 filler items (e.g., "Do you like to read?")]. In the original study, the items were found to load onto one principal factor. Because children with ASD display core deficits in social-communication, it was believed that some of our children might have difficulty completing the full measure. We wanted to know if an abbreviated scale would sufficiently measure loneliness in children with ASD. Thus, the measure was abbreviated by selecting from the original measure the eight items with the highest factor loadings plus three filler items (the eight items selected for the abbreviated version can be found in Table 2). Children responded verbally to the items by answering "Yes," "No," or "Sometimes." Cronbach's alpha for the present sample was .68. Further, factor analysis was applied to extract friendship and loneliness factors. Reliability estimates for the resultant factors are reported with the factor analysis results below.

Autism Symptomatology (Parent Report)

The parent completed the Social Responsiveness Scale (SRS, Constantino and Gruber 2005). This is a 65-item measure used to identify the presence and extent of autism symptoms. Items are rated on a four-point scale ranging from 1 (not true) to 4 (almost always true). There are five SRS scales: (1) social awareness; (2) social cognition; (3) social communication; (4) social motivation; and (5) autistic mannerisms. These combine to a total score, with higher scores indicating greater autistic social impairment. Cronbach's alpha for the total score for present sample was .89.

Children's Communication Skills (Parent Report)

The Children's Communication Checklist (CCC-2; Bishop; 2006) is a 70-item measure broken into 10 scales, each with seven items, which assesses language and social communication skills in children ages 4–16 years. The scales focus on language and communication skills, pragmatics, and communication behaviors that are typical of children with ASD. The Global Communication Composite, which is the sum of all scaled scores, was utilized in the present study as a measure of the child's overall communication level. Cronbach's alpha for the present sample was .86.

Children's Social Skills (Parent and Teacher Reports)

Parents and teachers separately completed the Social Skills Improvement System (SSiS, Gresham and Elliott 2008), a 79-item measure used to assess the child's social skills, problem behaviors, and academic competence. Each item is rated on a four-point scale ranging from 1 (not true) to 4 (very true). We utilized the social skills scale (46 items), which includes sub-domains measuring communication, cooperation, assertion, self-control, responsibility, empathy, and engagement. Cronbach's alpha for the social skills scale was .95 for both parents and teachers in this sample.

Child Behavior Problems (Parent Report)

The Child Behavior Checklist (CBCL; Achenbach 2000; Achenbach and Rescorla 2001) was used to assess child behavior problems from the parent's perspective depending on the age of the child at the time of the assessment. There are two age-specific versions, one for ages 1.5–5 years (99 items) and one for ages 6–18 years (112 items). Each item is rated on a 3-point scale: 0 (not true), 1 (somewhat or sometimes true), or 2 (very true or often true). The CBCL yields a total problem score, broadband externalizing and internalizing scores, and seven narrow-band scales. The present study utilized T scores for total, internalizing and externalizing behavior problems ($M = 50$ and $SD = 10$). For the present sample, the scales on the age 1.5–5 parent report form had alpha coefficients ranging from .93 to .98, and the scales on the age 6–18 CBCL parent report form had alpha coefficients ranging from .91 to .97.

Child Behavior Problems (Teacher Report)

The Teacher Report Forms were also used to assess child behavior problems from the teacher's perspective, depending on the age of the child at the time of the assessment (TRF; Achenbach 2000; Achenbach and Rescorla 2001). As with parent reports of behavior problems, the present study utilized T scores for total, internalizing and externalizing behavior problems ($M = 50$ and $SD = 10$). With the present sample, the scales on the age 1.5–5 CBCL teacher report form had alpha coefficients ranging from .88 to .95, and the scales on the 6–18 teacher report form had alpha coefficients ranging from .92 to .97.

Social Integration/Isolation (Teacher Report)

Teachers completed the Isolated-Integrated scale of the Social Competence and Behavior Evaluation (SCBE; LaFreniere and Dumas 1995). The Isolated-Integrated scale is a 10-item measure of children's social competence, specifically assessing how integrated a child is among his/her peers. Teachers rate the child's behavior on a 6-point scale, ranging from 1 (the behavior never occurs) to 6 (the behavior almost always occurs). Example items include, "Inactive, watches the other children play;" "Initiates or proposes games to other children" (reverse coded) and "Does not respond to other children's invitations to play." For the present sample, the Isolated-Integrated scale had an alpha coefficient of .89.

Student–Teacher Relationship Quality (Teacher Report)

Teachers completed the STRS (Pianta 2001), which assesses the teacher's perception of his/her relationship with the child. This is a 28-item self-report measure with a 5-point response scale. The STRS is designed to be used for children 3–8 years (PreK-3rd grade) and has a *Total* score plus three subscales: *Conflict* (12 items) measures the teacher's feelings of negativity and conflict with the student (e.g., "This child and I always seem to be struggling with each other."); *Closeness* (11 items) measures the teacher's feelings of affection and open communication with the student (e.g., "I share an affectionate, warm relationship with this child."); and *Dependency* (5 items) measures the teacher's perception of the student as overly dependent (e.g., "This child asks for my help when he/she really does not need help."). The present study utilized *Conflict*, *Closeness*, *Dependency*, and *Total* scores, with Cronbach's alpha ranging from .62 to .84.

Descriptive information on these measures is contained in Table 1. Percentiles in the table refer to the percentile in which the children in our sample fell, on average, compared to a normative sample on the measure. Clinical cutoffs were based on information in the measure manuals.

Procedure

The Institutional Review Boards of the participating universities approved the study procedures. During the visit to determine study eligibility, graduate student researchers trained in the study procedures met with the child and his or her parent to complete a variety of tasks. The child was administered the *Autism Diagnostic Observation Schedule* (ADOS, Lord et al. 2000) and *Weschler Preschool and Primary Scales of Intelligence* (WPPSI-3; Wechsler 2002), to confirm the autism diagnosis and to determine whether the child met the IQ criteria for participation. All examiners were trained on these assessments and were reliable for research purposes on the ADOS. In cases where children had not already received a diagnosis of ASD from a non-school professional, the *Autism Diagnostic Interview—Revised* (ADI-R; Lord et al. 1994) was also administered to the parent.

Table 1 Descriptive statistics of parent- and teacher-reported variables

Measure	Mean (SD)	Range	Percentile ranking or % above clinical cutoff
Parent report			
SRS total score	78.95 (11.2)	46–91	62 % severe; 29 % mild/"high-functioning" autism
CCC global communication composite[a]	73.7 (13.0)	45–126	4th percentile
SSiS social skills scale	79.6 (15.2)	42–118	63 % below average (score < 85)
CBCL total T score	63.3 (10.3)	36–92	58 % borderline/clinical (T score ≥ 60)
CBCL internalizing T score	61.4 (10.2)	34–91	52 % borderline/clinical (T score ≥ 60)
CBCL externalizing T score	59.7 (11.1)	28–97	41 % borderline/clinical (T score ≥ 60)
Teacher report			
SSiS social skills scale	88.1 (12.6)	52–123	40 % below average (score < 85)
C-TRF total T score	57.4 (9.8)	33–87	35 % borderline/clinical (T score ≥ 60)
C-TRF internalizing T score	55.0 (10.1)	34–81	30 % borderline/clinical (T score ≥ 60)
C-TRF externalizing T score	55.7 (9.9)	36–78	28 % borderline/clinical (T score ≥ 60)
SCBE social integration/isolation	29.1 (10.0)	10–55	N/A
STRS total[b]	110.1 (13.7)	67–135	35th percentile[b]
STRS conflict[b]	22.4 (8.5)	12–48	62nd percentile[b]
STRS closeness[b]	41.5 (7.4)	19–54	28th percentile[b]
STRS dependency[b]	10.2 (3.4)	5–18	50th percentile[b]

[a] The CCC global communication composite is standardized with a M = 100 (SD = 15)

[b] The normative means for the STRS total, conflict, closeness, and dependency scores are 117, 19, 46, and 10, respectively (Pianta 2001)

Eligible children were entering Kindergarten, 1st, or 2nd grade. They visited the lab three times over 2 school years. Time 1 occurred at the beginning of the school year (i.e., in the fall), Time 2 occurred at the end of that school year (i.e., in the spring), and Time 3 occurred in the spring of the subsequent school year. This report is based on child data from the Time 2 visit. At this visit, children were administered the abbreviated version of the Loneliness and Social Dissatisfaction Questionnaire (LSDQ; Cassidy and Asher 1992). Because this is a verbal self-report measure, we only administered it to those children with enough language to understand and answer the questions.

Of the 207 eligible participants from the larger study, 37 were excluded because they were given the Module 1 on the ADOS; 12 were excluded because they had IQs below 70; 21 had not yet completed a Time 2 visit; and 10 were excluded via clinical judgment. The use of clinical judgment in the cases of the 10 children who were excluded was determined during the time of the lab visit by the research assistant administering the child measures. These cases were excluded due lack of adequate language/ability or excessive behavior problems as demonstrated during the three practice questions asked prior to the administration of the measurement questions. One hundred twenty seven participants were determined to have sufficient language and cognitive ability, and thus included. These 127 children were administered either the Module 2 or Module 3 on the ADOS and demonstrated the language, social, and cognitive abilities to answer the *Loneliness and Social Dissatisfaction Questionnaire* (Cassidy and Asher 1992). Research assistants were PhD students in School Psychology or Special Education who had prior clinical or teaching experience with children with autism; they were trained in the procedures outlined in the study protocol and administered the measure to the children.

During the visit, parents completed paper and pencil measures and participated in an extended interview. Parents received an honorarium of $50 in appreciation. Before leaving, the parent was provided with a small packet of measures, along with a lab-addressed and stamped envelope, to give to their child's teacher. Included in the packet was a form to be signed by the parent consenting to the teacher's participation, and a teacher-consent form to be mailed back to us in the envelope. Teachers were provided $25 for completing the packet; in only rare instances did a teacher have more than one child involved in the study.

The administration of the LSDQ began with a vignette describing a boy who sometimes has friends at school to play with, and other times feels left out or lonely at school. Following the vignette, the child was presented with a visual aid with three bars (i.e., one shaded all the way with the word "Yes" above it, one half shaded with the word "Sometimes" above it, and one not shaded with the word "No" above it). The examiner read all items aloud to the

child beginning with the instructions and three practice questions (i.e., "Now, I'm going to ask you some questions about yourself. You can answer these questions by saying either 'Yes,' 'No,' or 'Sometimes.' You can also point to the answer on this piece of paper. For example, I might say, 'Do you like to eat ice cream? And what would you say?'").

Results

Children's Perceptions of Loneliness and Friendships at School

All statistical analyses were carried out utilizing SPSS version 22.0 (IBM Corp. 2013). The frequency with which children answered the questions on the Loneliness and Social Dissatisfaction Questionnaire (LSDQ) is summarized in Table 2. Overall, fewer children answered "Sometimes" to the questions than "Yes" or "No." With regard to loneliness, about a quarter of the children responded, "Yes," when asked the following questions: "Are you lonely at school" and "Do you feel alone at school?" When asked if he/she felt left out of things at school, 21.5 % children responded "Yes," 19.0 % responded "Sometimes," and 59.5 % responded "No." In describing their perceptions of friendships at school, children frequently reported having friends (78.0 %), having kids to play with at school (78.0 %), and having kids at school who liked them (72.0 %). However, almost 40 % reported that it was hard to make friends and get kids to like them. These responses indicate that while the majority of the children with ASD responded in a positive way, a considerable proportion (from 20 to 40 % depending on the question) still reported social difficulties at school.

Table 3 describes responses to the items further by breaking the sample into two groups based on age (4–5 vs. 6–7). Chi square analyses were conducted on the number responding "Yes," "Sometimes," or "No" to each LSDQ item. There were no significant differences between the two groups on 7 of the 8 items. On one item, "Is it hard for you to make friends at school," a significant difference was found between younger and older children, $\chi^2 = 7.32$, $p < .05$. In the younger age group, 42.8 % answered "Yes" or "Sometimes," while the older group expressed more difficulty, with a combined percent of 63.4.

Exploratory Factor Analysis of the LSDQ

An exploratory factor analysis was conducted to determine the number of reliable and interpretable factors that could be extracted from the abbreviated 8-item version of the LSDQ. Three items were reverse coded (i.e., "Do you have lots of friends at school;" "Do you have kids to play with at school;" and "Do the kids at school like you?"). An oblique rotation (i.e., direct oblimin) was employed, as the factors were assumed to correlate with one another; this is the method that has been recommended when utilizing maximum likelihood estimation (Raykov and Marcoulides 2008). An initial analysis was run to obtain eigenvalues for each factor in the data. Three factors had eigenvalues over Kaiser's (1960) criterion of 1. In combination the three factors explained 62 % of the variance. Bartlett's Test of Sphericity was significant, χ^2 (28) = 190.14, $p < .001$, indicating that the correlation matrix was not an identity matrix, thus confirming that the factor analysis was an appropriate method to carry out (Raykov and Marcoulides 2008). One item (i.e., "Do the kids at school like you?") did not load saliently onto any of the three factors (i.e., factor loading < .10). Therefore the analysis was run again without the inclusion of this item.

The analysis on the seven items also resulted in three factors with eigenvalues over Kaiser's (1960) criterion of 1. In combination the three factors explained 70 % of the variance. Bartlett's Test of Sphericity remained significant, $\chi^2(21) = 184.31$, $p < .001$. The pattern matrix in Table 4

Table 2 Child report of loneliness and social dissatisfaction—percent endorsing, whole sample

	Children's answers		
	Yes	Sometimes	No
Are you lonely at school?	23.6	10.2	66.1
Do you feel alone at school?	24.6	11.9	63.5
Do you feel left out of things at school?	21.5	19.0	59.5
Is it hard to get kids at school to like you?	39.7	12.7	47.6
Is it hard for you to make friends at school?	38.4	15.0	45.7
Do you have lots of friends at school?[a]	78.0	7.9	14.2
Do you have kids to play with at school?[a]	78.0	12.6	9.4
Do the kids at school like you?[a]	72.0	15.2	12.8

[a] Items reverse coded in subsequent analyses

Table 3 Child report of loneliness and social dissatisfaction—percent endorsing, answers for different age groups

	Children's answers						χ^2
	Yes		Sometimes		No		
	Ages 4–5	Ages 6–8	Ages 4–5	Ages 6–8	Ages 4–5	Ages 6–8	
Are you lonely at school?	25.0	22.5	5.4	14.1	69.6	63.4	2.60
Do you feel alone at school?	30.9	19.7	5.5	16.9	63.6	63.4	4.90
Do you feel left out of things at school?	23.2	20.0	14.3	22.9	62.5	57.1	1.50
Is it hard to get kids at school to like you?	45.4	35.2	5.5	18.3	49.1	46.5	4.99
Is it hard for you to make friends at school?	35.7	42.3	7.1	21.1	57.1	36.6	7.32*
Do you have lots of friends at school?[a]	78.6	77.5	7.1	8.4	14.3	14.1	.07
Do you have kids to play with at school?[a]	82.2	74.6	8.9	15.5	8.9	9.9	1.33
Do the kids at school like you?[a]	75.9	69.0	11.1	18.3	13.0	12.7	1.25

* $p < .05$

[a] Items reverse coded in subsequent analyses

Table 4 Factor loadings: child-reported loneliness and social dissatisfaction

	Factors		
	Lonely	Difficulty Making Friends	Lack of friends
Are you lonely at school?	1.03		
Do you feel alone at school?	.55		
Do you feel left out of things at school?	.35		
Is it hard for you to make friends at school?		.54	
Is it hard to get kids at school to like you?		.75	
Do you have lots of friends at school?*			1.01
Do you have kids to play with at school?*			.43

* Item reverse coded; Bartlett's Test of Sphericity: $\chi^2(21) = 181.31$, $p < .001$; only loadings greater in absolute value than .3 were included, as the communality (shared variance) is then salient (Raykov and Marcoulides 2008)

shows the factor loadings after rotation. The items that clustered on the factors suggested that Factor 1 represented *Loneliness* at school ("Are you lonely at school?" loaded highest on this factor), Factor 2 represented *Difficulty Making Friends* at school ("Is it hard to get kids at school to like you?" loaded highest on this factor). Factor 3 represented *Lack of Friendships* at school (reverse coded "Do you have lots of friends at school?" loaded highest on this factor). Factor scores were calculated for each participant. Cronbach's alpha coefficients for the resultant factors were .58 for the *Difficulty Making Friends* factor, .61 for the *Lack of Friendships* factor, and .74 for the *Loneliness* factor, which indicated that *Loneliness* was the most robust factor and the only factor to demonstrate adequate reliability. In fact, the alpha coefficient for this factor was similar to the estimate provided on the original scale, which included all the items loading onto one single factor [i.e., Cassidy and Asher (1992) reported an alpha of .79 in the original article]. The other two factors each only included two items, likely contributing to their low reliability estimates; therefore, subsequent results using these two factors should be interpreted with caution.

Child-Reported LSDQ Factors in Relation to Parent-Reports of Child Characteristics and Child IQ

Table 5 shows the correlations between the three child-reported factor scores, parent-reported variables, and child IQ scores. The *Loneliness* factor was significantly correlated with the SSiS social skills standard score ($r = -.20$, $p < .05$); higher parent rated child social skills were associated with lower child-reported loneliness. The *Difficulty Making Friends* factor was not significantly correlated with any of the parent-reported variables or child IQ. The *Lack of Friends* factor was found to significantly correlate with parent-reports of child communication ability on the CCC ($r = -.22$, $p < .05$); poorer communication abilities were

Table 5 Child-reported factors correlated with parent-reported variables and child IQ (N = 127)

	1	2	3	4	5	6	7	8	9	10
1. Lonely	1									
2. Difficulty Making Friends	.19*	1								
3. Lack of Friends	.42***	.18*	1							
4. CBCL int	.06	.08	.10	1						
5. CBCL ext	.10	.08	.07	.62***	1					
6. CBCL tot	.13	.07	.13	.80***	.90***	1				
7. Social skills	−.20*	−.12	−.12	.47***	.56***	.62***	1			
8. Autism severity	.04	.13	.11	.57***	.60***	.68***	.59***	1		
9. Communication	−.15	−.12	−.22*	−.25**	.42***	.45***	.49***	.55***	1	
10. FSIQ	−.02	−.01	−.20*	.15	.04	.06	.10	−.13	.21**	1

* $p < .05$; ** $p < .01$; *** $p < .001$

1. Child-reported *Loneliness* factor; 2. Child-reported *Difficulty Making Friends* factor; 3. Child-reported *Lack of Friends* factor; 4. *Child Behavior Checklist Internalizing Problems* T score; 5. *Child Behavior Checklist Externalizing Problems* T score; 6. *Child Behavior Checklist Total Problems* T score; 7. *SSiS* social skills standard score; 8. *Social Responsiveness Scale* total T score; 9. *Children's Communication Checklist* global communication composite standard score; 10. *WPPSI* estimated full scale IQ score

associated with a lack of friendships. Child IQ was also significantly correlated with this factor ($r = -.20$, $p < .05$); lower IQ was associated with a lack of friendships. Although not included in Table 5, it should be noted that mother reported receipt of early intervention services (a dichotomous variable) was not associated with any of the three child-reported LSDQ factors.

Child-Reported LSDQ Factors in Relation to Teacher-Reports of Child Characteristics

Table 6 shows the results of correlations between the three child-reported factor scores and the teacher-reported variables. The *Loneliness* factor was significantly correlated with the TRF total behavior problems ($r = .20$, $p < .05$), SSiS social skills standard score ($r = -.25$, $p < .01$), and SCBE social isolation score ($r = .21$, $p < .05$). Lower teacher ratings of child social skills and higher ratings of child behavior problems and social isolation were associated with more child-reported loneliness. Additionally, the *Loneliness* factor was significantly correlated with teacher reports of conflict in the student–teacher relationship (STRS; $r = .22$, $p < .05$); more conflict in the student–teacher relationship was related to more child-reported loneliness at school. The *Difficulty Making Friends* factor was significantly correlated with teacher reports of child behavior problems on the TRF (internalizing T score: $r = .21$, $p < .05$; externalizing T score: $r = .27$, $p < .01$; and total T score: $r = .26$, $p < .01$); higher teacher ratings of child behavior problems were associated with the child reporting more difficulty making friends.

The *Lack of Friends* factor was significantly correlated with teacher reports on the SCBE social isolation scale ($r = .34$, $p < .001$); higher teacher ratings of social isolation were associated with the child reporting a lack of friends. Not surprisingly, children who were high in teacher-reported child behavior problems also had a lack of friends; total behavior problems correlated significantly with *Lack of Friends* ($r = .28$, $p < .01$). Additionally, the *Lack of Friends* factor was significantly correlated with teacher reports of the student–teacher relationship (STRS conflict: $r = .27$, $p < .01$ and STRS total: $r = -.26$, $p < .01$); more conflict and a poorer relationship overall between the child and his/her teacher were significantly related to more child-reported lack of friendships at school.

Predictors of Child-Reported Loneliness

Because only one factor, *Loneliness*, was found to demonstrate adequate reliability, we performed one hierarchical linear regression with this child-reported factor as the outcome variable. The parent- and teacher-reported social and STR variables found to significantly relate to child-reported *Loneliness* in correlational analyses were included as predictors. In the absence of an a priori theoretical perspective that would drive the order of predictors (i.e., previous work has not included young children's reports of loneliness as an outcome variable), the predictors were entered in two blocks; the first block included associated parent-reported variables and the second block included associated teacher-reported variables. All predictor variables were correlated to check for multicollinearity prior to running the regression.

The hierarchical linear regression analysis on the child-report on the *Loneliness* factor is summarized in Table 7 (note, teacher-reported social skills on the SSiS and social

Table 6 Child-reported factors correlated with teacher-reported variables (N = 107)

	1	2	3	4	5	6	7	8	9	10	11	12
1. Lonely	1											
2. Difficulty Making Friends	.19*	1										
3. Lack of Friends	.42***	.18*	1									
4. CBCL Int	.13	.21*	.41***	1								
5. CBCL ext	.19	.27**	.18	.54***	1							
6. CBCL tot	.20*	.26**	.28**	.75***	.88***	1						
7. Social skills	−.25*	−.18	−.16	−.44***	−.47***	−.59***	1					
8. Social isolation	.21*	.12	.34***	.53***	.26**	.50***	−.68***	1				
9. STRS conflict	.22*	.18	.27**	.46***	.68***	.65***	−.45***	.32***	1			
10. STRS closeness	−.13	−.04	−.10	−.17	.03	−.13	.45***	−.47***	−.11	1		
11. STRS dependency	−.06	.20†	.20†	.42***	.43***	.47***	−.11	.11	.52***	.23*	1	
12. STRS total	−.17	−.15	−.26**	−.43***	−.49***	−.56***	.54***	−.41***	−.76***	.52***	−.43***	1

† $p < .06$; * $p < .05$; ** $p < .01$; *** $p < .001$

1. Child-reported *Loneliness* factor; 2. Child-reported *Difficulty Making Friends* factor; 3. Child-reported *Lack of Friends* factor; 4. *Child Behavior Checklist Internalizing Problems* T score; 5. *Child Behavior Checklist Externalizing Problems* T score; 6. *Child Behavior Checklist Total Problems* T score; 7. *SSiS* social skills standard score; 8. *Social Responsiveness Scale* total T score; 8. *Social Competence and Behavior Evaluation Isolated-Integrated Scale* score; 9. *Student–Teacher Relationship Scale* Conflict score; 10. *Student–Teacher Relationship Scale* Closeness score; 11. *Student–Teacher Relationship Scale* Dependency score; 12. *Student–Teacher Relationship Scale* Total score

Table 7 Regression analysis—outcome variable: factor 1—loneliness

	Predictors	*B*	*SE B*	*B*	R^2
Block 1: parent report	Parent report—social skills	−.01	.01	−.21*	.04
Block 2: + teacher report	Parent report—SSiS social skills	−.02	.01	−.25*	.11
	Teacher report—Total behavior problems	−.01	.02	−.07	
	Teacher REPORT—Social isolation	.01	.01	.10	
	Teacher report—STRS conflict	.03	.02	.27†	

† $p < .07$; * $p < .05$; $F(4,81) = 2.35$; $p < .05$

isolation on the SCBE measures were correlated at .68; therefore, only social isolation was used in the regression). In *Block 1*, parent-reported social skills were entered into the model. The variance accounted for was 4 % ($R^2 = .04$, $F = 3.74$, $p < .05$). In *Block 2*, teacher-reported total child behavior problems, social isolation, and conflict in the student–teacher relationship accounted for an additional 7 % of the variance ($\Delta R^2 = .07$, $p < .05$), and the model variance accounted for remained significant ($R^2 = .11$, $F = 2.35$, $p < .05$). This final model, accounting for 11 % of the variance, indicated that parent reports of social skills deficits were significantly associated (at $p < .05$), and teacher reports of conflict in the student–teacher relationships were associated at a trend level ($p < .07$), with child-reported loneliness.

Discussion

The perceived rates of loneliness and social competence among high functioning 4–7-year-old children with ASD (i.e., those without comorbid ID) were assessed through child self-report using an abbreviated version of the *Loneliness and Social Dissatisfaction Questionnaire* (LSDQ; Cassidy and Asher 1992). The majority of children in our sample perceived themselves to have friends, other children to play with, and children who liked them at school. Given the social-communication deficits of individuals with ASD, it is surprising that the responses to these items were so positive. If this finding replicates in other samples it would paint a less bleak picture of social development among young children on the spectrum without comorbid ID.

That said, nearly 40 % of the children reported difficulties making friends at school and a quarter reported feeling lonely and left out of things at school. This is much higher than the 10 % reported by Asher and colleagues (1984) among older youth with typical development. Thus, while many children in our sample self-reported positive relationships at school, a substantial proportion reported social difficulties. Our reporters were quite young and yet many were already feeling socially isolated. In fact as a qualitative anecdote, during an assessment visit to our lab, a parent disclosed that her 5-year-old child said that, "School is the loneliest place on earth." Sadly, the social isolation children with ASD feel can lead to later feelings of depression or anxiety, frequently documented in adolescence (Mazurek and Kanne 2010).

The finding that some young high functioning children with ASD perceive themselves to have social problems at school is consistent with studies of older youth on the spectrum (e.g., Howlin et al. 2004; Kalyva 2010; Kasari et al. 2011; Rotheram-Fuller et al. 2010). Studies with older children and adolescents with ASD have revealed higher levels of loneliness than among TD youth (Storch et al. 2012; Lasgaard et al. 2010). The results of the present study support the proposition that early social interventions could be beneficial for young children with ASD (Reichow and Volkmar 2010), not only because teachers and peers have acknowledged lower social competence in children on the spectrum, but also because the children themselves report social difficulties.

Unlike the Cassidy and Asher study (1992), where all items on the LSDQ loaded onto one factor, the present study found three factors of loneliness and social competence. We utilized an abbreviated version of the measure and a sample of children with ASD with no co-morbid ID, which may have contributed to this difference. The items from the LSDQ reliably captured children's self-reports clustering on three distinct factors—*Loneliness*, *Difficulty Making Friends*, and *Lack of Friends*—in a meaningful and interpretable manner. The *Loneliness* factor was found to be the most robust, demonstrating adequate reliability among a group of high functioning young children on the spectrum. With only three items, making it an efficient measure of children's own feelings of loneliness, future researchers, teachers, and clinicians may want to consider its use when investigating social relationships among children with ASD without comorbid ID in the early school years.

Studies of older youth have reported agreement between child-reported social competence and reports from parents and teachers (Falkmer et al. 2012; Kalyva 2010). Here, when associated with parent and teacher reports, the three factors of the LSDQ correlated with several variables in the directions we would expect. Child-reported loneliness, difficulty making friends, and lack of friendships at school were associated with parent and teacher reports of social skills, social isolation, and child behavior problems. Additionally, conflict in the relationship between the child and his/her teacher was related to child reported loneliness.

For typically developing children, poor student–teacher relationships have been linked to children's social competence deficits, fewer pro-social behaviors, and victimization and aggression (Howes 2000; Pianta and Stuhlman 2004; Troop-Gordon and Kopp 2011). The finding that aspects of STR quality were associated with both loneliness and a lack of friendships are consistent with Hughes and Kwok (2006) who found that STRs in first grade predicted peer acceptance the following year among TD children. The present study extended these findings in a sample of children with ASD without comorbid ID by finding that teacher reported quality of the student–teacher relationship was related to the children's own feelings of social problems at school. Considering child-reported loneliness, student–teacher conflict was found to be approaching statistical significance in a combined model, relating to loneliness almost as strongly as parents' ratings of the children's social skills. This suggests that relationships with teachers may possibly have a buffering or exacerbating effect on children's loneliness. Teachers may not be aware of the degree to which their behavior and attitudes toward children with ASD impact both what the child with ASD thinks about him/herself, and possibly how peers view him/her. Though the association between child-reported loneliness and student–teacher conflict was small, these avenues may be worth exploring in future research.

Collectively, these findings validate the use the LSDQ measure with 4–7-year-old children with ASD without comorbid ID, as children's reports map onto those of their parents and teachers. It is promising to report that parent- and teacher-reports of social skills deficits and teacher-reports of child behavior problems and social isolation were associated with children's reports of loneliness, because it shows that teacher and parent awareness of social-communication deficits among high functioning children with ASD is consistent with the child's own feelings regarding problems with social interactions with peers at school. Another positive aspect of these findings is that simply making teachers aware of child loneliness, especially among children with ASD in general education settings, is a first step in ameliorating the problem. Also, teacher awareness might reduce the potential collateral negative effect of perceiving more conflict with the child on the spectrum, something that TD peers may discern and thus be less likely to choose the child with ASD as a friend.

Limitations and Future Directions

There are certain limitations that should be taken into account when considering the findings of this study. First, we included only children with ASD who were high functioning enough, and possessed enough language to answer the self-report questions asked on the LSDQ. Future studies should consider whether it is possible to assess child perceptions of social competence for children on the spectrum who have more limited language and cognitive abilities. Furthermore, we utilized a shortened version of the LSDQ that seemed most accessible to young children, but it could be instructive to test the full measure in this population. In fact, though associations were observed between children's reports and those of their parents and teachers, only modest relationships were identified. Utilization of a more comprehensive child self-report may help to further elucidate the associations (or lack thereof) between the different reporters. Additionally, administering the LSDQ at only one time point did not allow us to examine the stability of young children's perceptions of loneliness and social difficulties.

Further study of social experiences of young children with ASD should be extended to look at the relationship between parent- and teacher-reported variables and children's self-reports over time. It may be the case that earlier reports from adults can better identify risk factors as well as predictors of social success early for children with ASD as they enter their later elementary school years. In addition, future researchers could include behavioral observations to more directly assess the quality of children's social interactions; these were not possible in the current study, where the 127 participants came from almost as many schools. Further, although we did not find an association between receipt of early intervention services and child-reported loneliness, it might be beneficial in future studies to assess whether targeted social skills interventions can be explicitly linked to child-reported social outcomes.

Implications for Practice

Children's reports of their own social relationships and loneliness at school appear to be valid, even for very young children with ASD. These self-perceptions compliment parent- and teacher-reports, and their use may help to identify the areas most problematic from the child's perspective suggesting targets for interventions. As multi-informant assessment procedures are increasingly considered "best-practice," practitioners should consider including children's own reports. Too, teachers may be in a better position than parents to report on child loneliness because they observe the target child in a social context every day. Clearly, there is reason to be concerned when children reported being lonely at school, and their teachers also reported them as being socially isolated. Intervention programs that target child loneliness at school, involving teachers and children with ASD and those with typical development, should be further developed.

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Author Contributions SZ developed the idea for this study, which was based on an ongoing longitudinal project [IES, R324A110086, Jan Blacher, PI], participated in its implementation, including data collection, analysis, and all aspects of manuscript preparation; SC participated in the data collection and interpretation; AE, as co-PI, reviewed the manuscript; JB conceived of the study and design, directed study implementation, and participated in interpreting the data and drafting the manuscript. All authors read and approved the final manuscript.

References

Achenbach, T. M. (2000). *Manual for the child behavior checklist 1½–5*. Burlington: University of Vermont.

Achenbach, T. M., & Rescorla, L. A. (2001). *Manual for the ASEBA school-age forms and profiles*. Burlington: University of Vermont.

Asher, S. R., Hymel, S., & Renshaw, P. D. (1984). Loneliness in children. *Child Development, 55*, 1456–1464.

Bauminger, N., & Kasari, C. (2000). Loneliness and friendship in high-functioning children with autism. *Child Development, 71*, 447–456.

Bauminger, N., Shulman, C., & Agam, G. (2004). The link between perceptions of self and of social relationships in high-functioning children with autism. *Journal of Development and Physical Disabilities, 16*, 193–214.

Bauminger, N., Solomon, M., & Rogers, S. J. (2010). Predicting friendship quality in autism spectrum disorders and typical development. *Journal of Autism and Developmental Disorders, 40*, 751–761.

Bishop, D. V. M. (2006). *Children's Communication Checklist* (*2nd ed., U.S. ed.*). San Antonio, TX: Psychological Corporation.

Blacher, J., Baker, B. L., & Eisenhower, A. S. (2009). Student–teacher relationship stability across early school years for children with intellectual disability or typical development. *American Journal on Intellectual and Developmental Disabilities, 114*, 322–339.

Blacher, J., Howell, E., Lauderdale-Littin, S., DiGennaro Reed, F. D., & Laugeson, E. A. (2014). Autism spectrum disorder and the student teacher relationship: A comparison study with peers with intellectual disability or typical development. *Research in Autism Spectrum Disorders, 8*, 324–333.

Cappadocia, M. C., Weiss, J. A., & Pepler, D. (2011). Bullying experiences among children and youth with autism spectrum disorders. *Journal of Autism and Developmental Disorders, 42*, 266–277.

Cassidy, J., & Asher, S. R. (1992). Loneliness and peer relations in young children. *Child Development, 63*, 250–365.

Chamberlain, B., Kasari, C., & Rotheram-Fuller, E. (2007). Involvement or isolation? The social networks of children with autism in regular classrooms. *Journal of Autism and Developmental Disorders, 37*, 230–242.

Constantino, J. N., & Gruber, C. P. (2005). *The Social Responsiveness Scale*. Los Angeles, CA: Western Psychological Services.

Eisenhower, A., Blacher, J., & Bush, H. (2015). Longitudinal associations between externalizing problems and student–teacher relationship quality for young children with ASD. *Research in Autism Spectrum Disorders, 9*, 163–173.

Falkmer, M., Parsons, R., & Mats, G. (2012). Looking through the same eyes? Do teachers' participation ratings match with rating of students with autism spectrum conditions in mainstream schools? *Autism Research and Treatment, 2012*, 1–13.

Gresham, F. M., & Elliott, S. N. (2008). *Social skills rating system*. Circle Pines, MN: American Guidance Service.

Hollingsworth, H. L., & Buysse, V. (2009). Establishing friendships in early childhood inclusive settings: What roles do parents and teachers play? *Journal of Early Intervention, 31*(4), 287–307.

Howes, C. (2000). Social-emotional classroom climate in child care, child–teacher relationships, and children's second grade peer relationships. *Social Development, 9*, 191–204.

Howlin, P., Goode, S., Hutton, J., & Rutter, M. (2004). Adult outcome for children with autism. *Journal of Child Psychology and Psychiatry, 42*, 212–229.

Hughes, J. N., & Kwok, O. (2006). Classroom engagement mediates the effect of teacher–student support on elementary students' peer acceptance: A prospective analysis. *Journal of School Psychology, 43*(6), 465–480.

IBM Corp. (2013). *IBM SPSS statistics for windows, version 22.0*. Armonk, NY: IBM Corp.

Johnson, S. A., Filliter, J. H., & Murphy, R. R. (2009). Discrepancies between self- and parent-perceptions of autistic traits and empathy in high functioning children and adolescents on the autism spectrum. *Journal of Autism and Developmental Disorders, 39*, 1706–1714.

Kalyva, E. (2010). Multirater congruence on the social skills assessment of children with Asperger syndrome: Self, mother, father, and teacher ratings. *Journal of Autism and Developmental Disorders, 40*, 1202–1208.

Kasari, C., Locke, J., Gulsrud, A., & Rotheram-Fuller, E. (2011). Social networks and friendships at school: Comparing children with and without ASD. *Journal of Autism and Developmental Disorders, 41*, 533–544.

Kato, K., Mikami, K., Akama, F., Yamada, K., Maehara, M., Kimoto, K., et al. (2013). Clinical features of suicide attempts in adults with autism spectrum disorders. *General Hospital Psychiatry, 35*(1), 50–53.

LaFreniere, P., & Dumas, J. E. (1995). *Social competence and behavior evaluation (SCBE)*. Torrance, CA: Western Psychological Services.

Lasgaard, M., Nielsen, A., Eriksen, M. E., & Goossens, L. (2010). Loneliness and social support in adolescents with autism spectrum disorders. *Journal of Autism and Developmental Disorders, 40*, 218–226.

Laws, G., Bates, G., Feuerstein, M., Mason-Apps, E., & White, C. (2012). Peer acceptance of children with language and communication impairments in a mainstream primary school: Associations with type of language disability, problem behaviours and a change in placement organization. *Child Language Teaching and Therapy, 28*, 73–86.

Lord, C., Risi, S., Lambrecht, L., Cook Jr, E. H., Leventhal, B. L., DiLavore, P. C., et al. (2000). The Autism Diagnostic Observation Schedule—Generic: A standard measure of social and communication deficits associated with the spectrum of autism. *Journal of autism and developmental disorders, 30*(3), 205–223.

Lord, C., Rutter, M., & Le Couteur, A. (1994). Autism Diagnostic Interview-Revised: a revised version of a diagnostic interview for caregivers of individuals with possible pervasive developmental disorders. *Journal of autism and developmental disorders, 24*(5), 659–685.

Lyons, J., Cappadocia, M. C., & Weiss, J. A. (2011). BRIEF REPORT: Social characteristics of students with autism spectrum disorders across classroom settings. *Journal on Developmental Disabilities*, *17*(1), 77–82.

Macintosh, K., & Dissanayake, C. (2006). Social skills and problem behaviors in school aged children with high-functioning autism and Asperger's disorder. *Journal of Autism and Developmental Disorders, 36*, 1065–1076.

Matson, J. L., & Nebel-Schwalm, M. (2007). Assessing challenging behaviors in children with autism spectrum disorders: A review. *Research in Developmental Disabilities, 28*, 567–579.

Mayes, S. D., Gorman, A. A., Hillwig-Garcia, J., & Syed, E. (2013). Suicide ideation and attempts in children with autism. *Research in Autism Spectrum Disorders, 7*(1), 109–119.

Mazurek, M. O., & Kanne, S. M. (2010). Friendship and internalizing symptoms among children and adolescents with ASD. *Journal of Autism and Developmental Disorders, 40*, 1512–1520.

Odom, S. L., McConnell, S. R., & Brown, W. H. (2008). Social competence of young children: Conceptualization, assessment, and influences. In W. H. Brown, S. L. Odom, & R. R. McConnell (Eds.), *Social competence of young children: Risk, disability, and intervention* (pp. 3–29). Baltimore: Paul H. Brookes Publishing Co.

Pianta, R. C. (2001). *Student–teacher relationship scale: Professional manual*. Odessa, FL: Psychological Assessment Resources Inc.

Pianta, R. C., & Stuhlman, M. W. (2004). Teacher–child relationships and children's success in the first years of school. *School Psychology Review, 33*, 444–458.

Raykov, T., & Marcoulides, G. A. (2008). *An introduction to applied multivariate analysis*. New York: Routledge.

Reichow, B., & Volkmar, F. R. (2010). Social skills intervention for individuals with autism: Evaluations for evidence-based practices within a best evidence synthesis framework. *Journal of Autism and Developmental Disorders, 40*, 149–166.

Robertson, K., Chamberlain, B., & Kasari, C. (2003). General education teachers' relationships with included students with autism. *Journal of Autism and Developmental Disorders, 33*, 123–130.

Rotheram-Fuller, E., Kasari, C., Chamberlain, B., & Locke, J. (2010). Social involvement of children with autism spectrum disorders in elementary school classrooms. *Journal of Child Psychology and Psychiatry, 51*, 1227–1234.

Sattler, J. M., & Dumont, R. (2004). *Assessment of children: WISC-IV and WPPSI-III supplement*. San Diego, CA: Jerome M. Sattler Publishing Company.

Snow, A. V., & Lecavalier, L. (2011). Comparing autism, PDD-NOS, and other developmental disabilities on parent-reported behavior problems: Little evidence for ASD subtype validity. *Journal of Autism and Developmental Disorders, 41*, 302–310.

Storch, E. A., Larson, M. J., Ehrenreich-May, J., Arnold, E. B., Jones, A. M., Renno, P., et al. (2012). Peer victimization in youth with autism spectrum disorders and co-occurring anxiety: Relations with psychopathology and loneliness. *Journal of Developmental and Physical Disabilities, 24*, 575–590.

Strain, P. S., Schwartz, I. S., & Bovey, E. H, I. I. (2008). Social competence interventions for young children with autism. In W. H. Brown, S. L. Odom, & R. R. McConnell (Eds.), *Social competence of young children: Risk, disability, and intervention* (pp. 253–272). Baltimore: Paul H. Brookes Publishing Co.

Troop-Gordon, W., & Kopp, J. (2011). Teacher–child relationship quality and children's peer victimization and aggressive behavior in late childhood. *Social Development, 20*, 536–561.

Wainscot, J. J., Naylor, P., Sutcliffe, D. T., & Williams, J. V. (2008). Relationship with peers and use of the school environment of mainstream secondary school pupils with Asperger syndrome (high-functioning autism): A case–control study. *International Journal of Psychology and Psychological Therapy, 8*(1), 25–28.

Wechsler, D. (2002). *WPPSI-III technical and interpretation manual*. San Antonio, TX: Psychological Corporation.

White, K. J., & Jones, K. (2000). Effects of teacher feedback on the reputations and peer perceptions of children with behavior problems. *Journal of Experimental Child Psychology, 76*, 302–326.

White, S. W., & Roberson-Nay, R. (2009). Anxiety, social deficits, and loneliness in youth with autism spectrum disorders. *Journal of Autism and Developmental Disorders, 39*, 1006–1013.

Zeedyk, S. M., Rodriguez, G., Tipton, L. A., Baker, B. L., & Blacher, J. (2014). Bullying of youth with autism spectrum disorder, intellectual disability, or typical development: Victim and parent perspectives. *Research in Autism Spectrum Disorders, 8*, 1173–1183.