Title: Measuring Social Competence in School-Age Children with Down syndrome

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Introduction: The purpose of the present study was to describe performance of school-age children with Down syndrome (DS) on the Social Skills Improvement System (SSiS; Gresham & Elliot, 2008), a standardized, norm-referenced parent-report rating scale of social skills and problem behaviors. Specifically, we examined (1) how children with DS compare to the normative sample and (2) how performance on the SSiS corresponds to what is known about the social phenotype associated with DS, to determine its suitability as a measure for children with DS. The SSiS was designed as a rating scale to determine areas of social competence (i.e., prosocial behaviors and social skills) and problem behaviors to inform interventions and to be used as an outcome measure to document treatment progress. The SSiS can reliably differentiate children with intellectual disability, autism spectrum disorder, and specific learning disabilities (Gresham & Elliot, 2008), but its use has yet to be examined in school-age children with DS. Because social competence is directly related to everyday functioning and, importantly, academic success in school-age children, it is an important skill set to document. Because the SSiS was designed for the purpose of developing treatment goals and documenting progress, this tool has tremendous potential to serve as an outcome measure of social competence in school-age children with DS, an area in which there is an identified gap in available outcome measures for this population (Esbensen et al., 2017). We took a first step toward validating its use in this population by providing pilot data on the SSiS in a small group of school-age children with DS.

Method: Participants were 14 children with DS between 6 and 11 years (M = 8.69, SD = 1.43; 78.6% female). As part of a larger battery, parents completed the SSiS, and children were administered the Leiter International Performance Scale, 3rd edition—Cognitive Subtests to measure nonverbal cognition (Leiter nonverbal IQ: M = 58.07, SD = 10.06, range = 36-74). The SSiS has two domains: Social Skills (Communication, Cooperation, Assertion, Responsibility, Empathy, Engagement, and Self-Control subscales) and Problem Behaviors (Externalizing, Bullying, Hyperactivity/Inattention, Internalizing, and Autism Spectrum subscales). For each domain, a standard score is calculated (M = 100, SD = 15), and only raw scores are available for the subscales.

Results: Children with DS showed ‘average’ to ‘below average’ Social Skills standard scores (M = 93.21, SD = 13.81, range = 74-123) and ‘average’ to ‘above average’ Problem Behavior standard scores (M = 113.43, SD = 13.22, range = 84-136). Compared to the reported validation of the SSiS in children with intellectual disabilities—who scored 1 SD below average for Social Skills and 1 SD above average for Problem Behaviors (Gresham & Elliot, 2008)—it appears that children with DS display a syndrome-specific pattern of social behaviors that can be observed using the SSiS. A closer examination of performance across the subscales revealed relative strengths in the Social Skills areas of Communication, Empathy, and Engagement, and relatively high endorsements of Externalizing and Autism Spectrum behaviors in the Problem Behaviors domain. Finally, age trended negatively with Social Skills standard scores (r = -.41, p = .15) and was positively related to Problem Behaviors standard scores (r = .60, p = .03). As expected, the opposite pattern of associations was observed with nonverbal cognition (Social Skills: r = .57, p = .04; Problem Behaviors: r = -.47, p = .09).

Discussion: The SSiS is a promising measure for examining social competence in school-age children with DS. Our results indicate that performance on the SSiS is related to both age and nonverbal cognition in the expected directions. Our results further suggest that some syndrome-specific aspects of the DS behavioral phenotype may be detected using this measure, again supporting its sensitivity for use in this population. Specifically, social functioning is a hallmark feature of DS (Cebula et al., 2010; Fidler et al., 2008), and our sample with DS scored better than expected for children with intellectual disability on the Social Skills domain, driven by relative strengths in communication, empathy, and engagement. Although our sample scored similarly to the reported performance of children with intellectual disability on the Problem Behaviors domain, greater endorsement of Externalizing and Autism Spectrum items was observed. This may represent behaviors that are the most concerning to parents. Importantly, the SSiS is a tool designed to inform treatment planning and document progress, and our data show promise for its use as an outcome measure in school-age children with DS. Future directions include validating its use in a larger sample.
References/Citations: