

ABSTRACT

Children with Autism Spectrum Disorder (ASD) experience significant social problems, including deficits in social cognition. The present study sought to enhance understanding of contextualized social-cognitive assessments by extending the *Emergent Social Cognition Observation System* (ESCOS) to families of children with ASD. Originally established for children with and without general developmental delays, the ESCOS assesses social cognition in the context of parent-child discourse. The present study examined ESCOS ratings for 35 families of young children with and without ASD. Results provided preliminary reliability and validity evidence to support use of the ESCOS for children with ASD. Findings also suggested greater fragmentation in the social-cognitive skills of children with ASD relative to typically developing children, which may have implications for intervention approaches and conceptualizations of social cognition in this population.

INTRODUCTION

Children with autism spectrum disorder (ASD) exhibit significant social difficulties as well as substantial heterogeneity in social outcomes. Efforts to understand individual differences in social functioning have often focused on social-cognitive skills thought to underlie social behavior. Existing studies have largely evaluated social cognition in children with ASD through direct assessments of emotion understanding and perspective taking (e.g., Baron-Cohen, 1995; Peterson et al., 2012; Uljarevic & Hamilton, 2013; Yirmiya et al., 1998), with less attention devoted to ecological measures (see also Senju, 2013 for a discussion). However, the development and use of contextualized methods may enhance understanding of the complex interplay between child and environmental factors in the emergence of social cognition.

The *Emergent Social Cognition Observation System* (ESCOS) was designed to assess social-cognitive understanding in the context of parent-child discourse (Fenning, Baker, & Juvonen, 2011). The ESCOS is reliable and valid for populations of children with and without general non-ASD developmental delays, and ratings have been found to predict children's independent social cognition and social skills (Fenning et al., 2011). Given the unique social problems associated with ASD, the applicability of the ESCOS in this population might have important implications for the use of contextualized, naturalistic assessments to understand individual and group differences, and to inform potential intervention targets.

PRIMARY RESEARCH AIM

The present study compared the ESCOS in families of children with and without ASD and aimed to provide preliminary psychometric properties for this measure in a population of children diagnosed with ASD.

METHOD

Participants

The present study included 35 families of young children (24 boys; 40% Hispanic; M age = 5.98 years, SD = 1.51) with (n = 11) and without ASD (n = 24). ASD diagnostic status was determined at age 3 based upon a comprehensive assessment that included the Autism Diagnostic Observation Schedule (ADOS), the Autism Diagnostic Interview-Revised (ADI-R), and a clinical best estimate. All children with ASD exhibited familial risk for the disorder due to the presence of an older sibling with an ASD diagnosis.

METHOD

Procedures

The current sample was drawn from an ongoing longitudinal investigation. All participants in the present study participated in an age 3 diagnostic evaluation as well as a follow-up assessment during the preschool years. The preschool follow-up included an assessment of children's verbal IQ (WPPSI-III; M = 97.89, SD = 15.93) and a re-evaluation of autism symptoms. Parent-child dyads also participated in an emotion discourse task to provide a contextualized assessment of children's social-cognitive skills. Drawing upon procedures established in previous investigations (Fenning et al., 2011), parents were asked to talk with their child about a recent time he or she was "upset." Dyads were allotted 3 minutes for the discussion, although parents could end the task early to approximate naturalistic interaction.

Child Functioning:

•**Verbal IQ:** Children's verbal IQ was assessed using the Wechsler Preschool and Primary Scale of Intelligence, Third Edition (Wechsler, 2002).

•**Autism Symptoms:** Current autism symptoms were assessed using the ADOS (Lord, Rutter, DiLavore & Risi, 1999). The ADOS severity metric was used to index children's overall level of autism symptom severity (Gotham et al., 2009).

Contextualized Social-Cognitive Understanding:

•Parent-child emotion discourse interactions were coded using the *Emergent Social Cognition Observation System* (ESCOS; Fenning et al., 2011). Coding evaluated the extent to which the interaction provided opportunities for discussion of social-cognitive content and the degree to which the discourse fostered complexity in three core domains of children's social-cognitive understanding:

- **Internal state understanding (ICC = .93):** Awareness of and ability to interpret one's own mental and feeling states (e.g., references to discrete emotions, thoughts or desires)
- **Perspective taking (ICC = .78):** Attempts to identify, understand, and make inferences about another's emotions, point of view, or situation (e.g., affective, cognitive, and visual-spatial perspective taking).
- **Causal reasoning and problem solving (ICC = .86):** References to and explanations of causality as well as active problem solving.

•Each domain was rated on a 5-point scale, with 1 indicating no relevant reciprocal discussion and a score of 5 reflecting complex social-cognitive reasoning defined by significant independent child contributions.

Extension of an Observational Social-Cognitive Measure to Children with Autism

Rachel M. Fenning¹, Hannah Conforti¹, Leena Mohapatra³, Nicole McDonald², Daniel Messinger², & Heather Henderson²

¹California State University, Fullerton, ²University of Miami, ³Massachusetts General Hospital/Harvard Medical School

RESULTS

Internal Consistency: Full Sample

	1.	2.
1. Internal State Understanding	--	
2. Perspective Taking	.26	--
3. Causal Reasoning/Problem Solving	.67***	.36*

*** p < .001; * p < .05

For the sample as a whole, causal reasoning/problem solving was significantly associated with both internal state understanding and perspective taking. However, internal state understanding and perspective taking were not significantly related.

Internal Consistency: Diagnostic Groups

ASD	1.	2.
1. Internal State Understanding	--	
2. Perspective Taking	-.01	--
3. Causal Reasoning/Problem Solving	.87***	.07

*** p < .001

Non-ASD	1.	2.
1. Internal State Understanding	--	
2. Perspective Taking	.40*	--
3. Causal Reasoning/Problem Solving	.53**	.40*

** p < .01; * p ≤ .05; + p = .06

Internal state understanding and causal reasoning/problem solving were highly associated for children with ASD, whereas perspective taking was unrelated to either domain. The components held together more consistently for children without ASD.

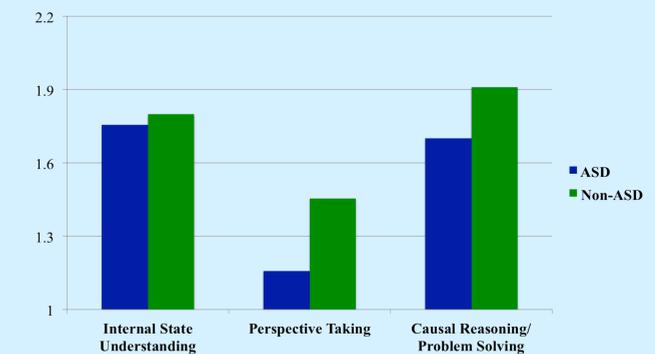
Group Differences

- Controlling for child age, gender, and verbal IQ, univariate ANOVAs revealed greater perspective taking and causal reasoning/problem solving skills among children without ASD (F = 7.59, p < .05; F = 5.91, p < .05, respectively).
- No significant group differences in internal state understanding emerged, F = .32, ns (d = .14).

Test-Criterion Evidence

- For children with ASD, discourse perspective taking was marginally related to autism symptom severity (ρ = -.63, p = .05).

Validity Evidence



CONCLUSIONS

- Findings provide preliminary reliability (inter-rater, internal consistency) and validity evidence for use of the ESCOS as a contextualized assessment of social-cognitive understanding in children with ASD.
- Results suggest greater fragmentation in the social-cognitive skills of children with ASD relative to typically developing children and highlight perspective taking as a possible isolated component. Replication with a larger sample will be important, as findings may inform debate about the extent to which social-cognitive skills develop in a unitary fashion within this population. Results may also have implications for related intervention perspectives.