21 Nonverbal Assessment of Theory of Mind in Children with Down Syndrome and Typically Developing Peers: An Examination of Group Differences and Associations with Structural Language Skills

Julia C Snoza, Nancy Raitano Lee
Drexel University, Philadelphia, PA, USA

Objective: Children with Down syndrome (DS) show marked differences in their early development when compared to typically developing (TD) peers. Major domains of challenge include intellectual abilities, executive functioning, and structural language. Children with DS have a unique profile of strengths and weaknesses that must be considered when comparing them to TD children, especially in terms of Theory of Mind (ToM). ToM encompasses the developmental milestones reached early in childhood when children develop the ability to conceptualize and understand others' thoughts, emotions, perspectives, and intentions. In TD children, these abilities typically begin to mature around 4-6 years of age, while in children with DS, delays are observed relative to chronological age expectations. Evidence shows that children with DS have impaired ToM abilities; however, these deficits might be more related to underlying delays in structural language, rather than a fundamental misunderstanding of social cues. The present study seeks to fill gaps in the literature by using a nonverbal assessment (The Penny Hiding Game; PHG) to evaluate a) ToM abilities in children with DS relative to younger TD peers of a similar mental ability level and b) relationships between ToM performance and structural language skills.
Participants and Methods: 25 children with DS (60% F, M=11.39 years) and 25 TD children (40% F, M = 5.37, range = 3 to 7) participated. Participants' structural language abilities were briefly assessed using the Wechsler Individual Achievement Test- III Listening Comprehension Test (Oral Discourse Comprehension subcomponent). ToM was assessed using the PHG.
Results: Univariate analysis of covariance was used to explore differences in ToM performance between groups while controlling for mental ability level. Children with DS (M= 2.79, SD= 2.23) performed significantly worse than TD peers (M= 4.28, SD= 1.87) on the ToM task (F (1, 60)= 4.5, p= .038). Linear regression was used to assess associations between ToM and structural language abilities. When both groups were lumped together, there was a modest association between ToM and Listening Comprehension scores (R2 = .12, F (1, 55) = 7.29, p= .009). However, when groups were considered separately, significant associations were not observed (p>.1).
Conclusions: The DS group showed markedly diminished ToM performance compared to TD controls, as expected based on the literature. However, data did not suggest a clear association between ToM and structural language skills. While an association was observed when groups were lumped, this relationship was likely driven by group differences in both ToM and structural language skills. Future research should examine the relationship between ToM performance, different aspects of language functioning, and the co-occurrence of autistic traits among children with DS in order to augment our understanding of linguistic and social correlates of ToM performance in young children with DS.

Categories: Autism Spectrum Disorders/Developmental Disorders/Intellectual Disability
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Correspondence: J. Snoza, Drexel University, jcs473@drexel.edu

22 Adaptive Functioning in 22q11.2 Deletion Syndrome Across the Lifespan: Where are the Social Determinants of Health?

Karen A Dorsman[1], Joy Neumann[2], Mary Hershberger[3], Kelli N Triplett[2], Sarah E Messiah[4,5], Veronica Bordes Edgar[1]
[1]University of Texas Southwestern Medical Center, Dallas, Texas, USA. [2]Children's Health, Dallas, Texas, USA. [3]Texas Tech University, Lubbock, Texas, USA. [4]Center for Pediatric Population Health Research, Dallas, Texas, USA. [5]University of Texas Health Science Center School of Public Health, Dallas, Texas, USA

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