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

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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
Keyword 1: intellectual disability
Keyword 2: language
Keyword 3: theory of mind
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22 Adaptive Functioning in 22q11.2 Deletion Syndrome Across the Lifespan: Where are the Social Determinants of Health?

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Objective: 22q11.2 Deletion Syndrome (22q11DS) is a multi-systemic disorder with great clinical heterogeneity. It is the most common microdeletion syndrome and one of the most common genetic causes of developmental delays (e.g., motor/speech). 22q11DS is estimated to occur between 1/2,000-4,000 live births. However, the diverse clinical presentation of 22q11DS and health inequities that impact ethnically, racially, linguistically, and economically marginalized groups, make early identification, diagnosis, and access to beneficial early interventions (e.g., speech/behavioral therapy) even more challenging. Therefore, 22q11DS' true prevalence may be larger than documented. Challenges associated with diagnosis, as well as neurocognitive, psychiatric, and medical co-morbidities associated with 22q11DS have been reported to affect the quality of life and well-being of people living with 22q11DS and their families. Yet, there is limited longitudinal data on lifelong functional outcomes of this population and the social factors that may shape them. This study aimed to 1) review the extant literature on adaptive functioning across the lifespan in 22q11DS and 2) report on relevant social and structural variables considered in the literature to contextualize adaptive functioning.
Participants and Methods: A scoping review was conducted between January-June 2022 across six electronic databases: PubMed, Scopus, PsycINFO, Ovid MEDLINE, EBSCO, and Embase. The 'building block' method was used to identify and design a comprehensive search strategy used to scan publications' titles, keywords, and abstracts. Citation mining strategy was utilized to identify additional relevant studies. The following inclusion criteria was met: 1) empirical studies conducted in humans, 2) participants with confirmed diagnosis of 22q11DS, 3) evaluation of adaptive functioning, 4) use of at least one standardized measure of adaptive functioning and 5) written or translated into English or Spanish.
Results: Eighty-four records were initially identified. After deduplication, abstract screening, and full record reviews, a total of twenty-two studies met inclusion criteria for this review. Only eight publications explored adaptive skills as one of their primary outcomes. Clinically significant symptoms of anxiety, withdrawal, anhedonia, and flat affect were associated with worse functional outcomes. Fifteen studies reported between one and three demographic variables (e.g., race/ethnicity, years of education), and only two studies documented mental health treatment status/history. Most studies reported lower adaptive abilities in participants with 22q11DS independent from their cognitive abilities, but the majority of participants scored between the below average range and exceptionally low range on measures of intellectual functioning. Nonetheless, information on contextual variables (e.g., educational/occupational opportunities) that may help to interpret these findings was lacking.
Conclusions: Methodological differences (e.g., definition and measurement of adaptive functioning), recruitment bias (small, clinic-based identified samples) and lack of information regarding contextual level factors, may be limiting our understanding of the neurocognitive and neuropsychiatric trajectories of people with 22q11DS. It is vital to increase representative samples in epidemiological/clinical studies, as well as research examining the social and structural factors (e.g., access to healthcare, socioeconomic position) that impact functional outcomes in this population to promote public health policies that can improve brain health across the lifespan.

Categories: Autism Spectrum Disorders/Developmental Disorders/Intellectual Disability
Keyword 1: multiculturalism
Keyword 2: diversity
Keyword 3: adaptive functioning
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23 Latent Profiles of Children Referred for Possible Autism

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Objective: Autism is a neurodevelopmental disorder characterized by impairments in social communication and the presence of restricted and repetitive behaviors (RRBs). Clinical diagnosis of autism is often complicated by heterogeneity in core autism traits and other individual characteristics (e.g., cognition).

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