

Title: Impact of Intellectual Disability on Social Motivation in Autism Spectrum Disorder

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Introduction: Autism Spectrum Disorder (ASD) is a heterogeneous developmental disorder often characterized by deficits in social functioning. While theories of core social cognition impairments (i.e. theory of mind) in ASD have dominated research in the field, less attention has been given to the role of social motivation. The social motivation theory of ASD suggests a framework where lack of social interest deprives a child of social learning opportunities, which then leads to diminished expertise in social cognition (Chevallier et al. 2012). From this perspective, social cognition deficits in ASD are a downstream consequence from primary social motivation deficits, such that early clinical interventions to boost social motivation may increase social cognition outcomes in later development. However, little research has addressed the role of cognition and specifically how intellectual disability (ID) fits within this framework. The current study stratifies a large ASD sample by intellectual ability to explore the impact of intellectual disability on social motivation.

Method: In the current study, we investigated social motivation, as measured on the Social Responsiveness Scale (SRS-2; Constantino & Gruber 2012) across a wide range of intellectual ability to better understand social motivation differences across ASD with and without ID. SRS-2 data was obtained through two large cohorts of children: one ascertained for ASD (n=2712) and one ascertained for an ASD- or ID- associated genetic etiology (n=136, study names withheld for de-identification for abstract review). Participants were categorically grouped based on nonverbal IQ: low (below 70), Mid-Low (70-84), Average (85-115) and Above average (above 115). Groups were compared based on overall SRS-2 Social Motivation T-score and an additional exploratory analysis of item level data within the subdomain.

Results: Overall SRS-2 T-scores indicated significant differences between all groups except between average and above average IQ groups, $F(3, 2836) = 63.04, p < .001$. On the social motivation subdomain, there were significant T-score group differences between the low IQ group and all other groups (mid low, average, and above average), $F(3, 2836) = 15.70, p < .001$. Exploratory analysis of item level data within the social motivation subdomain indicated significant differences on several items indicating increased social motivation problems in the low IQ group relative to the average and above average IQ groups, p 's $< .014$, after Bonferroni correction (items 1, 3, 9, 11, 23, 27, 43, 65) and also relative to the mid-low IQ group, $p < .073$, after Bonferroni correction (items 3, 11, 23, 27, 65). Groups did not vary on item 6, $p = 0.66$ (*Would rather be alone with others*), or item 34, $p = 0.14$ (*Avoids people who want to be emotionally close*).

Discussion: The results display significant group differences on the social motivation subdomain as well as at an item level, suggesting that social motivation may vary based upon cognitive abilities within ASD. The low IQ group differed significantly from all other groups on social motivation overall indicating that individuals with more serious intellectual disability are most impaired in social motivation, while other groups are similar to each other. This has clinical implications as it suggests that early intervention could be particularly important in individuals with severe intellectual disability—a group often already under-reached in intervention efforts. Notably, items related in part to avoidance (item 6 and 34) did not differ by group. However, the SRS-2 social motivation subscale does have some limitations as it relies on mostly behavioral approach and avoidance and fails to capture other important components such as social reward, effort to engage, and cognitive attributions, and it may not consider other origins of approach/avoidance behavior, such as social fears. Therefore, intellectual disability and social motivation should be further explored with more comprehensive measures of social motivation to better disentangle this relationship.

References:

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