

Theory of Mind and Language Skills of Bilingual Children with Autism Spectrum Disorder (ASD)

Iris Hindi¹, Natalia Meir^{1,2}

¹Affiliation1: Bar Ilan University, Department of English Literature, and Linguistics

²Affiliation2: Bar Ilan University, The Gonda Multidisciplinary Brain Research Center.

irishindi@gmail.com; natalia.meir@biu.ac.il

Numerous studies have shown that limited Theory of Mind (ToM) is a core deficit in individuals with Autism Spectrum Disorder (ASD) (e.g., Baron-Cohen, Leslie, & Frith, 1985). Very few studies have assessed ToM skills in bilingual children with ASD (but see Andreu et al., 2020). Recent studies, including a meta-analysis study of 1,1283 children, have indicated that there is a bilingual advantage on ToM skills among children with typical language development (TLD), yet this advantage is only apparent upon adjusting for language proficiency (Buac & Kaushanskaya, 2019; Schroeder, 2018). It is well-documented that in bilingual children, language skills are un-evenly distributed across their two languages (Konhert, 2010). The current study aimed to assess ToM and language skills of bilingual children with and without ASD in both of their languages.

A total of 32 bilingual English-Hebrew speaking children (ages 4;10-10;08) participated: 16 children with ASD (hereafter biASD) and 16 children with TLD (hereafter biTLD). The two groups were matched for age, non-verbal IQ (as measured by Raven, 1998), length of exposure to Hebrew. Children's morpho-syntax was assessed using sentence repetition tasks: Hebrew and English versions of LITMUS Sentence Repetition (Marinis & Armon-Lotem, 2015). Verbal ToM battery included 5 subtasks: Diverse Desires, Diverse Beliefs, Content False-Belief, First-Order False-Belief, Second-Order False-Belief). The nonverbal ToM was evaluated using a picture-sequencing task (Baron-Cohen et al., 1986) which included stories manipulating causal-mechanical, descriptive-behavioral, and psychological-intentional conditions. All children were tested in Hebrew and in English. Due to the COVID-19 pandemic, some sessions were provided online via Zoom: the testing modes were counter-balanced across the two groups.

The results indicated no differences between the two groups on morpho-syntax: the biASD group showed similar performance to their biTLD peers in both languages. Furthermore, there were no differences between the two groups in terms of non-verbal ToM scores. However, there were group differences on verbal ToM with the ASD group performing lower. On verbal ToM and sentence repetition tasks, an asymmetry in the performance across the two languages was observed: some children performed significantly higher in English, while some performed significantly higher in Hebrew. Additionally, we found strong correlations between morpho-syntactical scores and verbal-ToM scores only in the biASD group. The findings suggest that children with ASD may rely more on their linguistic skills to compensate for their deficient ToM competencies.

As for assessment of bilinguals, the study confirms that ToM skills and morpho-syntax should be assessed in both languages. As for intervention, the findings of the study highlight the importance of expanding morpho-syntactical skills to enhance ToM skills.

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