

Assessing pragmatic skills of young children with Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorder (ASD) and Typical Development (TD).

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Detection of below average development in language is a very promising way to screen children for language disorders and risk of future learning problems. At the same time is a valuable way to help children overcome any language difficulties through the provision of early intervention. Pragmatic language skills play a crucial role in effective communication and social interaction and until recently had received little research attention.

The purpose of this study was twofold: i) to investigate the acquisition of pragmatic skills in typical four, five and six-year-old children in order to better understand language development and risk characteristics, ii) to assess pragmatic skills in children with Autism Spectrum Disorder (ASD) (N=11) and Attention Deficit Hyperactivity (ADHD) (N=31) compared to a group of typically developing (TD) children of the same age and gender for each group.

Children's language was evaluated through a pragmatics task, which is part of a new standardized battery for assessing language development in children called "Logometro". The specific task has demonstrated adequate internal consistency ($\alpha > .78$) and test-retest reliability ($r = .82$) as well as unidimensional internal structure.

Task administration was completed individually through an Android application for mobile devices (tablets) that featured automatic age-adjusted norm calculation. The touchscreen enabled direct recording of children's oral responses. Data (language samples) were uploaded to a web-based application and were scored on four factors: understanding and interpretation of communication conditions and communicative environment, initiation and response. Differences in pragmatic skill (total scores and sub scores for each of the four factors) were examined through a series of t-tests (between the ASD group and the corresponding TD group, the ADHD group and the corresponding TD group and between ASD and ADHD groups). T-tests also used to examine specific test items that reached statistical significance in differentiating among groups.

In order to assess the classification accuracy of the pragmatics task for each developmental disorder Receiver Operating Characteristic Curves (ROC) analysis was also implemented. Results confirmed that the TD group had significantly better performance than the ADHD group, with significant differences found both in total scores and among the four factors. In contrast, between the ASD group and TD group were no significant differences in total score (except a trend) with the only significant difference found in one of the test factors. The comparison between the ADHD and ASD group also revealed statistically significant differences in total scores, with the

ADHD group showing better pragmatic skills. As far as specific test items/criteria for pragmatic competency, significant results found for the ADHD and the corresponding TD group in ten items/criteria, while four items/criteria found to be significantly different between the ASD and the corresponding TD group. Finally, eight criteria reached statistical significance between the ADHD and ASD groups. Most importantly, classification accuracy of the pragmatics task (total score and sub scores of certain factors) was confirmed through the ROC curves analysis for both the ADHD group and the ASD group.

Findings confirm our claim that pragmatic skills can be assessed effectively providing us with valuable and detailed information regarding areas of atypical development for intervention purposes.