



“Communicative skills in Spanish children with Autism Spectrum Disorder and children with Attention Deficit Hyperactivity Disorder. Analysis through parents’ perceptions and narrative production”



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ABSTRACT

Background: Communicative skills are one of the main deficits experienced by children with Autism Spectrum Disorder (ASD). The differential diagnosis is a complex issue that clinicians often face. For this reason, this study has two objectives: 1) to analyze the similarities and differences that children with Attention Deficit Hyperactivity Disorder (ADHD) and children with ASD present in their linguistic and communicative skills, through parents’ perceptions and narrative production; 2) to identify the relative importance of the skills analyzed in discriminating children with ASD versus children with ADHD, as well as the classification power of each of the two measurement methods used.

Method: Participants were 37 children with typical development (TD), 52 with ASD, and 35 with ADHD. Their communicative competence was assessed through The Children’s Communication Checklist Second Edition (CCC-2) (Bishop, 2003) and a narrative task.

Results: The results of the family ratings indicated that the difficulties were not as severe in ADHD as in ASD, where the deficit was much more pronounced in the interpretation of the context, non-verbal communication, and stereotyped language. On the narrative task, both groups displayed difficulties on expressing relevant information and inferential comprehension, and they differed on erroneous interpretations, with the children with ASD presenting worse performance. These variables showed a greater capacity to classify participants in the diagnostic categories studied.

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Conclusions: These findings have direct clinical implications for optimizing the assessment process, making it possible to identify which specific language aspects can best differentiate between groups.

1. Introduction

Recent studies have highlighted the diagnostic conundrum that clinicians often face when establishing differential diagnoses of verbally fluent school-age children with Autism Spectrum Disorder (ASD) and Attention Deficit Hyperactivity Disorder (ADHD) (Grzadzinski, Dick, Lord, & Bishop, 2016). These two neurodevelopmental disorders show a high co-occurrence; in fact, there is an overlap in genetic, neurobiological and neuropsychological bases, such as executive functioning or theory of mind skills (Miranda, Baixauli, Colomer & Roselló, 2013). One relevant aspect that can shed light on this complex topic is the analysis of communication. Persistent deficits in social communication are present across the autism spectrum (Schuh, Eigsti, & Mirman, 2016) and, even if they are not included in the core diagnostic criteria, language and pragmatic disturbances may often occur in ADHD (Bellani, Moretti, Perlini, & Brambilla, 2011; Green, Johnson, & Bretherton, 2014).

Studies that have compared the communicative competence in ADHD and in ASD (specifically, high functioning autism, without language impairment) have mainly used the Children's Communication Checklist (CCC-2) (Bishop, 2003), designed to assess social-communicative impairments in daily interactions. Most research has found similar deficits in both populations on coherence and inappropriate initiations. However, they do not seem to be as severe in ADHD as in ASD, where the impairment is more pronounced in the interpretation of the context, non-verbal communication, and stereotyped language (Geurts et al., 2004; Geurts & Embrechts, 2008; Helland, Biringer, Helland, & Heimann, 2012; Kuijper, Hartman, Bogaerds-Hazenberg, & Hendriks, 2017).

One of the main dimensions of communicative competence is narrative ability, which has proven to be a vulnerable domain in both ASD and ADHD. A meta-analysis about this topic in children with ASD found significant deficits in macrostructure (coherence and cohesive adequacy), microstructure (productivity and grammar) and internal state language (Baixauli, Colomer, Roselló, & Miranda, 2016). Children with ADHD experience difficulties in the elaboration and comprehension of stories as well, which is probably related to the cognitive characteristics of the disorder (Green et al., 2014; Ygual, Roselló, & Miranda, 2010). Despite these evidences, to the best of our knowledge, only two studies have tried to perform a comparative analysis of the narrative discourse produced by individuals with ADHD and with ASD, both using Tuesday (Wiesner, 1998), a story included in the Autism Diagnostic Observation Schedule (ADOS) (Lord, Rutter, DiLavore, & Risi, 2000). First, Rumpf, Kamp-Becker, Becker, and Kauschke (2012) found a similar performance in children with ASD, ADHD and typical development (TD) on aspects such as variety of syntactic structures, mean utterance length and use of connectors. However, the groups with ASD and ADHD produced significantly shorter and less coherent narrations than the TD group. Moreover, the group with ASD produced significantly fewer pronominal references and cognitive internal state terms compared to the group with ADHD and TD. More recently, Kuijper et al. (2017) found similarities between the groups with ADHD, ASD and TD, regarding story length. Similar to Rumpf et al.'s (2012) findings, children with ADHD and ASD showed difficulties in producing a coherent narrative. However, participants with ASD had more limitations regarding syntactic complexity and children with ADHD had more problems in their choice of referring expressions and speech fluency. The study by Kuijper et al. (2017) went one step further by analyzing the associations between the CCC-2 and narrative skills, obtaining a moderate correlation. In addition, significant associations were also found between narrative ability, theory of mind and working memory in both clinical groups.

From our point of view, the CCC-2 and the narrative task offer complementary but different information. The analysis of the narrative ability provides very relevant data, such as quantitative indicators about language samples. Although narratives involve a degree of pragmatic skill, they are more formal than everyday conversations and they have been shown predictive capacity of academic achievement (Griffin, Hemphill, Camp, & Wolf, 2004). This information would be difficult to obtain from questionnaires fulfilled by parents and teachers, that assess everyday communication and might give a more representative account of the child's behavior in everyday situations.

In summary, little research has been conducted that directly compare abilities across neurodevelopmental disorders within the same study and how different tasks demands might elicit different profiles (Botting, Bean-Ellawadi & Williams, 2016). In this sense, it might be useful to explore the utility of narrative measures which are administered by trained clinicians versus questionnaire measures based on parent or teacher ratings. Specifically, the identification of possible specific communication impairments across ADHD and ASD through different assessment procedures may help in the consideration of more appropriate intervention objectives. Consequently, the present study proposes the following objectives:

- To analyze the similarities and differences in the linguistic and communicative skills of children with ADHD, ASD, and TD, assessed using two different methods: parent ratings on the CCC-2 and a narrative task.
- To identify the relative importance of the CCC-2 subscales and the narrative task indicators in discriminating between children with ASD versus children with ADHD, as well as the classification power of each assessment method.

Our study extends previous research regarding pragmatic and narrative ability in ASD and ADHD. An important issue refers to the method used to elicit narratives. As stated above, both studies by Rumpf et al. (2012) and Kuijper et al. (2017), used the story book Tuesday (Wiesner, 1991) included during the assessment through the ADOS (Lord et al., 2000). Following the ADOS guidelines, the

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