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## Stable associations between behavioral problems and language impairments across childhood – The importance of pragmatic language problems



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### ABSTRACT

This study investigated language function associated with behavior problems, focusing on pragmatics. Scores on the Children's Communication Checklist Second Edition (CCC-2) in a group of 40 adolescents (12–15 years) identified with externalizing behavior problems (BP) in childhood was compared to the CCC-2 scores in a typically developing comparison group ( $n = 37$ ). Behavioral, emotional and language problems were assessed by the Strengths and Difficulties Questionnaire (SDQ) and 4 language items, when the children in the BP group were 7–9 years (T1). They were then assessed with the SDQ and the CCC-2 when they were 12–15 years (T2). The BP group obtained poorer scores on 9/10 subscales on the CCC-2, and 70% showed language impairments in the clinical range. Language, emotional and peer problems at T1 were strongly correlated with pragmatic language impairments in adolescence. The findings indicate that assessment of language, especially pragmatics, is vital for follow-up and treatment of behavioral problems in children and adolescents.

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## 1. Introduction

Language is an important tool for social interaction as well as a means to control one's own and other's emotions and behaviors. Children who are able to use language to regulate their emotions and behave in a socially appropriate way are more likely to develop good peer relations and form new friendships (Im-Bolter & Cohen, 2007). Three intersecting areas of language – form, content, and use – are all essential ingredients for communication, and impairments within any of these

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areas may cause problems. The form and content components characterize language structure, whereas the use component characterizes pragmatics (Bloom & Lahey, 1978; Spanoudis, Natsopoulos, & Panayiotou, 2007). A growing body of research points to an association between behavioral and language development, and several studies have reported a substantial degree of overlap between language impairments and behavioral problems (Cross, 2011; Hill & Coufal, 2005; Mackie & Law, 2010). Children with language impairments frequently experience behavioral problems, and conversely, many children with behavioral problems show language impairments (Gallagher, 1999; Hartas, 2012; Ketelaars, Cuperus, Jansonius, & Verhoeven, 2010). Although this relationship is well documented in the literature, it seems to be less recognized in practice, and there is good evidence that language impairments are substantially underreported in children with psychiatric diagnoses (Cohen, Farnia, & Im-Bolter, 2013; Im-Bolter & Cohen, 2007; Law & Garret, 2004). Hill and Coufal (2005) claim that although students with behavioral disorders experience language impairments, their problems in this domain may be left as an “invisible” or “marginal” handicap unless systematic assessment is carried out. Symptoms that may be caused by problems in understanding or producing language may be perceived by adults as non-compliance, social withdrawal, or inattentiveness (Cohen, 2001). Children with Attention-Deficit/Hyperactivity Disorder (ADHD) and Autism Spectrum Disorders (ASD) commonly present co-existing problems related to language. Previous research has shown that in a large population derived sample of 5672 children aged 7–9 years, almost 60% of the children identified with symptoms of ADHD ( $n = 290$ ) also fulfilled the criteria for language impairments compared to 5.7% of the typically developing control group (Helland, Posserud, Helland, Heimann, & Lundervold, 2012). Furthermore, in a clinical sample of 6–15 year old children with Asperger syndrome and children with ADHD, 90.5% and 82.1%, respectively, presented with clinically significant language impairments (Helland, Biringer, Helland, Heiman, 2012).

In their review of studies of language skills in children identified with emotional and behavioral disorders, Benner, Nelson, & Epstein (2002) found that 71% experienced clinically significant language impairments. In their study of children aged 7–14 years referred to psychiatric services, Cohen, Menna and colleagues (1998) reported that children identified with language impairments showed more immature abilities with respect to resolving interpersonal conflicts than children without language impairments. Furthermore, parents often perceived these children as problematic and hard to manage compared to typically developing peers (Law & Garret, 2004).

Language impairments refer to a broad spectrum of difficulties including limited vocabulary, expressive deficits, phonological deficits, comprehension deficits, and pragmatic language deficits. All these problems have been reported in studies of children with behavioral disorders (Gallagher, 1999). According to Tannock and Schachar (1996), pragmatic difficulties are the most frequently reported language problem. Pragmatics refers to the appropriate use and interpretation of language in different social contexts (Bishop, 1997). Children with pragmatic language impairments may speak fluently and well-articulated, but they have problems adhering to the needs of the conversational partner; they may make incorrect inferences, give conversational responses that are socially inappropriate or tangential, and interpret language in an over literal manner (Fujiki & Brinton, 2009; Poletti, 2011). Pragmatic language deficits are clinically relevant because they may have detrimental effects on the development of successful peer relations and negatively impact the child's quality of life (Gibson, Adams, Lockton, & Green, 2013). Gilmour, Hill, Place, and Skuse (2004) found that two-thirds of their sample of children with conduct disorder had pragmatic language impairments. They also identified pragmatic language deficits in about two-thirds of a sample of children with antisocial behavior, and suggested that these deficits may underlie the antisocial behavior. In line with this, Donno, Parker, Gilmour, and Skuse (2010) argue that pragmatic language deficits should be considered a possible contributory factor to behavioral problems in primary school children. According to Leonard, Milich, and Lorch (2011), pragmatic skills provide a unique contribution in the estimate of the children's social skills above and beyond the contribution of both hyperactivity and inattention. Recently, Mackie and Law (2010) reported clinical significant language impairments (pragmatic-, structural- and word decoding difficulties) in 91% of referred children. These findings strongly indicate that language impairments of some kind very often accompany behavioral disorders.

Several explanations have been offered to account for the relationship between language- and behavioral problems (see Hartas, 2012); (1) language difficulties may lead to frustration and anger resulting in increased problems with social behavior and fewer opportunities to interact with peers, (2) behavioral problems, like inattention and hyperactivity, may contribute to language and literacy problems, (3) both language and behavioral difficulties co-exist and reciprocally influence each other, (4) the two conditions share an underlying deficit that may explain the association between language and behavioral problems (Hartas, 2012). All these explanations refer to the strong correlation between the two domains of problems. This is supported by the tendency that a wide range of problems seems to cluster within the same individual, and the high rates of comorbidity in child psychiatry (Posserud & Lundervold, 2013).

The Early Symptomatic Syndromes Eliciting Neurodevelopmental Clinical Examinations model (ESSENCE) has been put forward to describe the more overarching dysfunction generally encountered within child psychiatry (Gillberg, 2010), and genetic studies also support the existence of larger, less specific set-ups of genes that together form a heightened vulnerability to a wide range of problems from intellectual disability to anxiety and more subtle motor problems (Cross-Disorder Group of the Psychiatric Genomics Consortium, 2013; Lichtenstein, Carlström, Gillberg, & Anckarsäter, 2010). The ESSENCE model was conceptualized also because developmental problems seem to change over time, depending on external factors, where a child may present with language problems in early childhood and then develop more overt ADHD symptoms in early school age. Inspired by this model, the current study aim at studying language difficulties within a broader group defined as having behavioral problems.

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