



Emergent literacy skills, behavior problems and familial antecedents of reading difficulties: A follow-up study of reading achievement from kindergarten to fifth grade

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ABSTRACT

This study examined the relation between emergent literacy skills, teachers' reports of behavioral problems, and word reading achievement in a community sample of French students. Family background was investigated and included familial antecedents of reading difficulties (Fa/Rd) and parents' educational level. The analyses explored the pattern of concurrent relations between behavioral, familial and emergent literacy measures in a sample of 812 preschoolers, and their predictive power in explaining word reading achievement in a sub-sample of 150 children followed from kindergarten to fifth grade. Word reading at fifth grade was predicted by kindergarten measures of phonological awareness and letter knowledge. Teachers' reports of inattention symptoms at each grade level were associated with early reading skills and with subsequent word reading. Fa/Rd were concurrently and longitudinally associated with emergent literacy skills, teachers' reported inattention and word reading. These results indicate that children with a family history of reading difficulties are at increased risk for the co-occurrence of reading difficulties and attention problems from kindergarten onward. These findings confirm the shared influence of Fa/Rd on the comorbidity between inattention symptoms and reading difficulties in a non-diagnosed community sample of preschool children followed through late elementary school.

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1. Introduction

Reading acquisition is a central challenge in children's developmental trajectories and a key determinant to overall educational success during elementary school (Cunningham & Stanovich, 1997; Duncan et al., 2007; Stanovich, 1986). As a result, children who manifest early difficulties in learning to read represent a vulnerable group at high risk of underachievement trajectories throughout childhood and beyond, with long lasting consequences and costs for individuals and societies (Campbell, Pungello, Miller-Johnson, Burchinal, & Ramey, 2001; Heckman, 2006; Maughan et al., 2009).

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The concept of emergent literacy postulates that the development of reading ability is associated with a range of skills displayed by the preliterate child that are considered developmental precursors of conventional forms of reading and writing, as well as the social environments that allow the emergence of these developments (Whitehurst & Lonigan, 1998). Within the set of emergent literacy skills, the existing literature has highlighted three main constructs strongly associated with preschool children's subsequent word identification abilities: oral language skills, print knowledge and phonological processing abilities. An extensive body of research has supported the predictive value of these skills for preschoolers' later word reading outcomes (Jordan, Snow, & Porche, 2000; Lonigan, Burgess, & Anthony, 2000; Storch & Whitehurst, 2002; Spira, Bracken, & Fischel, 2005; Wagner et al., 1997). Importantly, extant longitudinal analyses have shown that individual differences in these early literacy skills are relatively stable from kindergarten onward and contribute to later discrepancies in reading ability throughout elementary school (Billard et al., 2009; Cunningham & Stanovich, 1997; Hecht, Burgess, Torgesen, Wagner, & Rashotte, 2000; Watier, Dellatolas, & Chevrie-Muller, 2006). Preschoolers' oral language skills, such as vocabulary knowledge and oral comprehension, were found to be powerful predictors of early and later reading achievement suggesting their crucial role in learning to read for beginning readers (Muter, Hulme, Snowling, & Stevenson, 2004; Storch & Whitehurst, 2002; Watier et al., 2006). Print knowledge, which refers to children's understanding of the conventions of prints (e.g., knowing that writing goes from left to right and top to bottom across a page), letter names and print to sound correspondences, was shown to explain a substantial proportion of variability in the growth of reading outcomes (Hecht et al., 2000; Wagner et al., 1997). However, letter knowledge has been pointed as the most powerful single predictor of short and long-term literacy success, when compared with other aspects of print knowledge (Lonigan et al., 2000; Muter et al., 2004; Storch & Whitehurst, 2002). Finally, phonological awareness, the ability to explicitly represent and manipulate the sounds of language, is considered a developmental precursor of critical importance in the initial stages of reading acquisition, particularly in children's ability to decode words into their linguistic units (Hulme, Snowling, Caravolas, & Carroll, 2005; Wagner & Torgesen, 1987, for a review). Poor readers have been consistently found to perform below the level of normal readers on phonological awareness tasks (Hecht et al., 2000; Shaywitz et al., 1999) and longitudinal studies have demonstrated its unique contribution to later reading progress during elementary school (Billard et al., 2008, 2009; Spira et al., 2005; Storch & Whitehurst, 2002; Sprenger-Charolles, Siegel, Béchennec, & Serniclaes, 2003; Sprenger-Charolles, Colé, Béchennec, & Kipffer-Piquard, 2005; Torgesen, Wagner, Rashotte, Burgess, & Hecht, 1997; Wagner et al., 1997). Moreover, the relation between phonological awareness and learning to read appears to be reciprocal, as demonstrated in several studies regarding the crucial role of early reading skills in the acquisition of phonological awareness (de Santos Loureiro et al., 2004; Dellatolas et al., 2003). Thus, a substantial body of evidence suggests the developmental continuity between preschoolers' emergent literacy and oral language skills with later reading and word decoding abilities. As a consequence, children who fail to develop proficient levels of emergent literacy skills at preschool are at increased risk of experiencing inadequate reading abilities during elementary school (Storch & Whitehurst, 2002; Whitehurst & Lonigan, 1998).

In order to increase understanding of the factors that influence early academic achievement, researchers have called for a broader perspective that recognizes the importance of behavioral correlates in subsequent learning (Duncan et al., 2007; Entwisle & Alexander, 1998). Notably, the association between reading achievement and behavior problems during early and middle childhood has been well documented (Hinshaw, 1992, for a review). Numerous studies at the preschool level have presented evidence regarding the intersection between emergent literacy skills and early behavior problems prior to school entry (Lonigan et al., 1999; Rabiner & Coie, 2000; Spira & Fischel, 2005, for a review; Velting & Whitehurst, 1997). Moreover, evidence from longitudinal research has demonstrated a link between early behavior problems and academic underachievement from kindergarten to elementary school (Al Otaiba & Fuchs, 2006; Bub, McCartney, & Willet, 2007; Dally, 2006; Hinshaw, 1992, for a review; Rabiner & Coie, 2000; Trzesniewski et al., 2006; Vaughn, Zaragoza, Hogan, & Walker, 1993). Therefore, children who meet criteria for reading disabilities (RD) are reported to be at increased risk of comorbidity with psychiatric disorders, in particular with externalizing disorders such as Attention Deficit Hyperactivity Disorder (ADHD), both inattentive and hyperactive-impulsive subtype (Hinshaw, 1992), and Conduct Disorder (CD) (Angold, Costello, & Erkanli, 1999). However, it has been proposed that the significant overlap of RD, ADHD and CD is related with shared associations between these diagnostic entities. Indeed, reading difficulties and CD were shown to be unrelated except by their common correlation with the attention deficits reported in ADHD (Rapport, Scanlan, & Denney, 1999; Carroll, Maughan, Goodman, & Meltzer, 2004). Furthermore, despite the well-documented association between ADHD and reading problems (Merrell & Tymms, 2001; Hinshaw, 1992), a growing literature has documented that it is the inattentive subtype of ADHD, when compared with the hyperactive subtype, which correlates more strongly with the reading difficulties of school-aged children (Willcutt & Pennington, 2000a; McGee, Prior, Williams, Smart, & Sanson, 2002). Importantly, longitudinal studies have presented evidence that inattentive behavior during kindergarten predicted reading achievement by the end of elementary school (Duncan et al., 2007; Rabiner & Coie, 2000), and that inattention reported at elementary school significantly predicted long-term educational attainment at age 22–23 (Pingault et al., 2011). In France, existing literature has revealed similar patterns concerning the association between behavior problems and reading difficulties. Inattention symptoms reported by the teacher, but not hyperactivity-impulsivity or conduct problems, were significantly related with early reading skills in preschool children (Dellatolas, Watier, Giannopulu, & Chevrie-Muller, 2006; Giannopulu, Escolano, Cusin, Citeau, & Dellatolas, 2008), and predicted reading achievement on measures of word identification and reading comprehension (Billard et al., 2010; Giannopulu, Cusin, Escolano, & Dellatolas, 2007). Although existing literature has reported a significant association between reading achievement and behavior problems on children in elementary school, the relationship between emergent literacy skills and behavioral difficulties in young children before school entry remains

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