

Identifying the risk of dyslexia in bilingual children: exploring the potential of language-dependent and language-independent measures

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Identifying dyslexia in children who are learning to read in their second language (L2) is challenging. Linguistic processing skills such as nonword repetition (NWR, sentence repetition (SR) and phonological awareness (PA; Moll et al., 2015; Vellutino et al., 2004), and cognitive abilities such as rhythm production and perception (Thomson & Goswami, 2008), inhibition (Doyle et al., 2018), and rapid automatized naming (RAN) (Carioti et al., 2021) are impaired in monolingual children with dyslexia, raising the question about their usefulness in bilingual children.

The study aims to investigate the performance of mono- and bilingual children with and without reading difficulties on language-dependent and language-independent tasks, and examine the relationship between the performance of these tasks and reading. There were 72 children: 18 monolingual good readers (MONO-GR, $M_{age} = 10;4$), 19 monolingual poor readers (MONO-PR, $M_{age} = 10;3$), 21 bilingual good readers (BI-GR, $M_{age} = 10;6$), and 16 bilingual poor readers (BI-PR, $M_{age} = 10;6$). Children in the BI groups spoke Italian as their L2. Standardized Italian reading tests, language-dependent tasks: NWR, SR and PA and language-independent experimental tasks: timing anticipation, beat synchronization, rhythmic inhibition control, auditory reaction time and RAN were administered.

MONO-PR and BI-PR groups performed below controls on the PA, NWR and SR tasks, exhibited slower RAN and reduced inhibition control, made greater timing errors in paced and un-paced tapping to slow rhythms, and were less consistent in paced tapping to fast rhythms. The BI groups performed below the MONO groups in SR and NWR. Correlations between language-dependent, language-independent tasks and reading were identified. The tasks involve minimal linguistic content, or rely on the manipulation rather than knowledge of linguistic structures, making them less influenced by language experience (except for NWR and SR). At the same time, these tasks are sensitive to reading difficulties highlighting their potential for improving the diagnosis of dyslexia in linguistically diverse children.

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