



## Exploring temperament and sensory integration in children who stutter

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In clinical practice as in research, the co-existence of disorders associated with stuttering is very frequent: Blood (2003) estimates that around 35% of children who stammer have a co-occurring language disorder. In addition, some of them display behaviours suggestive of hyper- or hypo-sensitivity. According to J. Ayres and W. Dunn, these attitudes could be due to sensory integration difficulties. For example, if a child has oral hypersensitivity, it is conceivable that when they stutter, unpleasant oral sensations could lead them to fight or avoid these sensations. In his researches on temperament, K. Eggers has shown that children who stammer as a group are more reactive to events and have more self-regulation issues (=the ability of the system to return quickly to a state of calm) than children who do not stammer.

A preliminary study by J. Communal (Bordeaux 2022) using Dunn's 'Sensory Profile' (DSP) questionnaire with 14 children who stammer, aged 4 to 7, without co-occurring disorders, concluded that 'the main results [...] suggest that the children who stammer of our cohort have more sensory differences, particularly in the processing of sensory information'.

As more in-depth studies are needed to explore this hypothesis, we used the PSD with children who stutter with co-occurring language disorders, and with children with developmental oral language disorders without stuttering. We also wanted to compare the results of the PSD with the CBQ ("Child Behaviour Questionnaire", by M. Rothbart) because this questionnaire was used by K. Eggers in his studies about temperament in children who stutter.

Marguerite Boyer (Lyon, 2023) administered the two questionnaires to a population of children under 7, having a stutter isolated or associated with a language disorder, and children with a language disorder without stuttering. The cohorts from the preliminary study and the 2022-2023 study were combined, giving a total of 30 children.

Our hypothesis were:

- 1) Children who stutter, as a group, have significant difficulties with sensory integration compared with children who do not stutter.
- 2) Children who stutter with a developmental language disorder have more sensory integration problems than children who stutter without associated disorders.
- 3) Children who stutter as a group have significant differences in temperament compared with children who do not stutter
- 4) In both groups (children who stutter and children without stuttering) there is a correlation between sensory integration disorders and temperament.

The conclusions of this research to date are :

"The present study encourages further investigations to enrich speech and language therapy research in these different areas. It also supports the possible links between sensory integration and temperament and the value of using the Dunn and Rothbart questionnaires together for research and clinical practice".

The project is continued in 2023-2024, with a student from Poitiers, Maelle Roué. We are looking for volunteer speech and language therapists to take part in this study and help us recruit participants:

- Children under 7 years of age
- Stammering for more than 3 months with no associated disorder
- Diagnosed oral language disorder, without associated biomedical conditions, with or without stuttering.

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