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Overexcitability and sensory profile of highly gifted children and impact on emotional difficulties

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Introduction

Overexcitability (OE), defined as intense sensations for internal or external stimuli is often described in highly gifted children (HGC) and can trigger anxiety (Harrison & Van Hanegan, 2011). However, literature about the link between high intelligence, overexcitability and anxiety remains quite inconsistent (Peyre et al., 2016). In this study, we assessed the overexcitability (via the sensory profile) and the interoceptive sensitivity (defined as the attention to one's internal body signals) in HGC compared to typical children to explore which aspects are linked to anxiety sensitivity and symptoms.

Methodology

1. PARTICIPANTS

Clinical and demographical features



	Group HGC (N=20)	Control children (N=20)
Age ¹	132.15 +/-18.68	129.95 +/-18.78
Sex	11 boys/9 girls	11 boys/9 girls
IQ ²	132.45 +/-8.6	105.5 +/-7.6

¹ Means and standard deviations in months;

² Total intellectual quotient for HGC and General Ability Index for control group

2. MATERIAL

2.1. Sensory profile

(Dunn, 2010)

Information processing of:

Auditory	Balance
Visual	Tonus
Tactile	Oral
Multisensory	Emotion

2.2. Body Perception

Body perception questionnaire (Porges, 1993)

Measure of *interoceptive sensitivity*

2.3. Anxiety

3.1. Revised-Children's Manifest Anxiety Scale (RCMAS) (Reynolds & Richmond, 1999)

1. Total anxiety
2. Physiological anxiety
3. Worries/oversensibility
4. Social worries/attention

3.2. Childhood Anxiety Sensitivity Index (CASI) (Stassart et al., 2013)

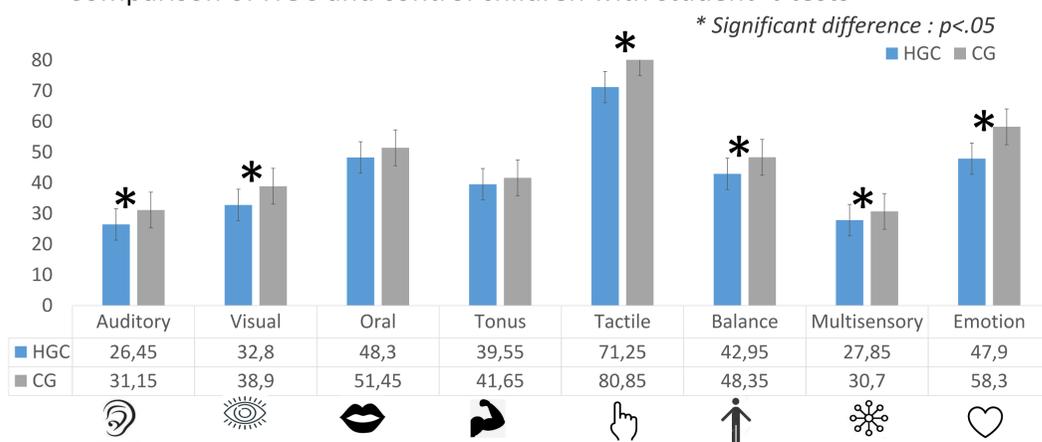
1. Total anxiety sensitivity
2. Physical concerns
3. Mental incapacities concerns
4. Social concerns
5. Fear of losing control

Results

1. GROUP COMPARISON

1.1 Sensory profile

Comparison of HGC and control children with student's *t* tests



1.2. Body perception

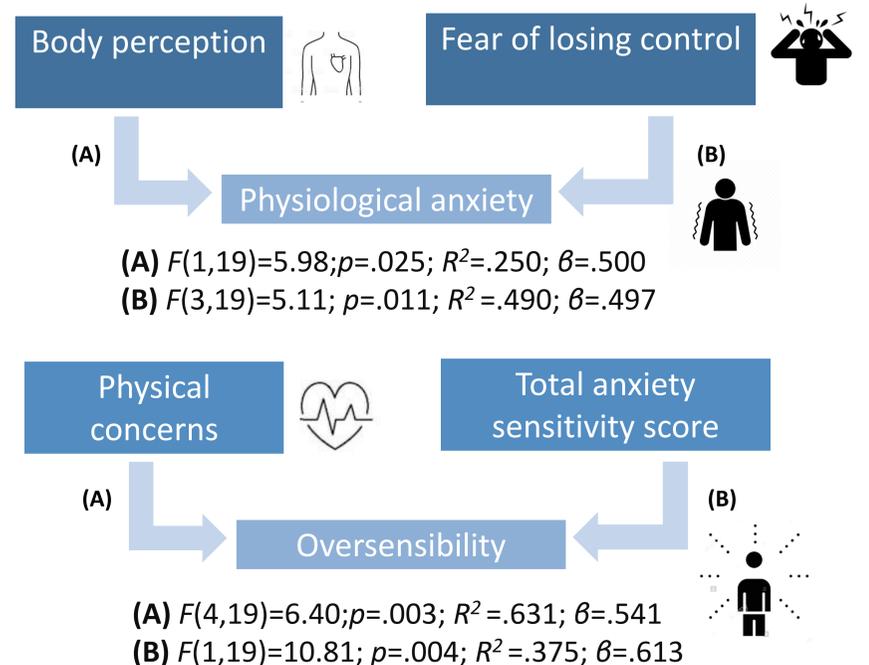
Compared to control children (66.1 +/- 13.05), HGC (73.3 +/- 13.05) present a trend toward more interoceptive sensitivity ($t=1.744$; $p=.089$)

1.3. Anxiety

No difference were found except a trend toward difference for more social concerns in HGC ($t=1,965$; $p=.057$)

2. BACKWARD REGRESSION ANALYSES

For HGC



Discussion and conclusions

Our results suggest a specific sensory profile in HGC, with a heightened sensitivity and intensity of experience. More particularly, HGC experience an enhanced sensitivity for **auditory, visual, tactile, balance, emotional and multisensory** information as well as a **higher interoceptive sensitivity**. These observations are consistent with the theory of a particular **nervous system overreaction** in HGC (Chang & Kuo, 2013). These results shed new lights on the sensory profile in HGC and the role of attention and interpretation of body signals information in anxiety/oversensibility. Further research could investigate the link between emotional difficulties in HGC and disturbed perception, interpretation of and worries about symptoms.