

MEETING ABSTRACTS

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# Proceedings of the 4th IPLeiria's International Health Congress

Leiria, Portugal. 11-12 May 2018

Published: 13 September 2018



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been conducted mainly with adults and unimpaired children using the Serial Reaction Time Task (SRTT). The few studies conducted with language impaired children produced inconsistent results [3]. Since performance of this task involves a motor component that seems to be also impaired in SLI, it is critical to conduct studies using other tasks and paradigms.

#### Objective

To analyse if IL deficits are core in SLI using an Artificial Grammar Learning (AGL) task. The AGL task is particularly suited to study IL deficits in SLI because it mimics language acquisition more closely than SRTT and, in addition, avoids its motor component. In an AGL task, participants are firstly exposed to strings that conform the rules of an artificial-grammar (learning-phase). Then, they are asked to decide whether new strings conform or not these rules (test-phase). Performance is typically better to grammatical (G) than to non-grammatical (NG) strings, indicating that participants learned the grammar even without consciousness of it.

#### Methods

Fourteen Portuguese children participated in this study ( $M_{age}=4.86$ ,  $SD=.66$ ), 7 with a SLI diagnosis matched in age, sex, and non-verbal IQ with other 7 children with typical development (TD). All children were asked to perform a visual AGL task presented as a computer game. Written consent was obtained from all parents.

#### Results

Results showed that TD children outperformed SLI children in the test-phase. More hits were also observed for the G strings that revealed higher- than lower-similarity with the strings presented in the learning-phase. Furthermore, the analysis of children performance showed that while TD children revealed an increased number of correct responses and a decreased number of attempts to achieve a correct response in the learning-phase, SLI children did not.

#### Conclusions

Children with SLI reveal deficits in their IL abilities as indexed by a worse performance both in the learning and test phases of a visual AGL task. IL malfunctioning should be considered in the aetiology of the disorder.

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#### Keywords

Specific Language Impairment, Implicit learning, Artificial grammar learning, Language impaired children.

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### Do children with Specific Language Impairment (SLI) present implicit learning (IL) deficits? Evidence from an Artificial Grammar Learning (AGL) paradigm

Ana P Soares<sup>1</sup>, Andreia Nunes<sup>1</sup>, Paulo J Martins<sup>2</sup>, Marisa Lousada<sup>3</sup>

<sup>1</sup>Psychology Research Center, School of Psychology, University of Minho, 4710-057 Braga, Portugal; <sup>2</sup>Center for Humanistic Studies of the University of Minho, University of Minho, 4710-057 Braga, Portugal;

<sup>3</sup>Center for Health Technology and Services Research, School of Health Sciences, University of Aveiro, 3810-193 Aveiro, Portugal

**Correspondence:** Ana P Soares (asoares@psi.uminho.pt)

*BMC Health Services Research* 2018, **18(Suppl 2)**:P5

#### Background

Specific Language Impairment (SLI) is a neurodevelopmental disorder involving language deficits in the absence of other associated condition [1]. The aetiology of SLI is hotly debated, ranging from representational deficits in grammar to impairments in the cognitive processes that underlie language acquisition. Recent research suggests that SLI difficulties may arise from implicit learning (IL) deficits, *i.e.* impairments in the cognitive mechanisms that allow children to extract the structural regularities present in the input and to generalize it to new contexts [2]. IL studies have