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Development of an assessment tool for Working Memory skills for Greek school-aged children - A feasibility study

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Introduction

Working memory tasks mimic the mental demands of everyday activities requiring both storage and manipulation of verbal and/or spatial information. Research supports the relationship of working memory to reading comprehension, fluid and general intelligence and complex learning. Furthermore, it is shown that working memory may be used for successful identification and prediction of special educational needs in children. Thus, it is of great importance for occupational therapists working with school-aged children to have access to tools that would allow a quick and easy assessment of working memory. Currently, there are no such tools in Greece. This lack of an instrument hinders occupational therapists from facilitating performance and participation in school life of children with cognitive deficits.

Objectives

To present the initial development stages and the psychometric properties of a working memory battery including relatively easy tasks which are motivating and meaningful for Greek children.

Methods

The working memory battery consisted of 9 items based on game activities. These were administered to 106 typically developing children aged 7-11 years attending mainstream schools in Greece. Internal consistency, test-retest reliability, construct validity and developmental trends were examined.

Results

Internal consistency measured with Cronbach's alpha ranged from 0.726 to 0.810. Pearson correlation analysis showed that test-retest reliability was 0.913. Construct validity was supported by correlating working memory scores to reading comprehension and non-verbal reasoning. Clear developmental trends were also demonstrated.

Conclusion

Initial results suggest that the developed tool is a reliable and valid measure of working memory. Future research should investigate further reliability and validity properties by incorporating larger international samples.

Contribution to the practice / evidence base of occupational therapy

The developed tool followed by further refinement will allow occupational therapists in Greece to identify working memory deficits that may impact on children's occupational performance at school and everyday life. This will enable them to work towards in-time support to improve learning. Furthermore, it will allow further research on this area and promote evidence-based practice, as therapists will not only rely on their observations to assess working memory. Further validation of the tool may also allow its use in other countries.