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Crystallised and Fluid Ability Change Across Age and a Psychometric Evaluation of the GRT2: A Cross-Sectional Analysis

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Abstract

This paper critically evaluated many psychometric properties of the General Reasoning Test (GRT2) and examined age changes in Crystallised and Fluid ability across the 16- to 58-year age range, as represented by the Verbal and Abstract GRT2 scales, respectively. Respondent data came from a large New Zealand-based archived group (N=5075) of individuals whom had completed the assessment as a component of general-level pre-employment information gathering. The psychometric evaluation found the GRT2 to possess adequate internal consistency, and a sub-adequate item-difficulty distribution, for both the Abstract and Verbal scales. A cross-sectional analysis of ability suggested a significant linear decline in Fluid intelligence and non-significant change in Crystallised intelligence, across age. Furthermore, heterogeneity of Fluid ability variance appeared to increase significantly across age, whereas Crystallised ability variance did not. Results were interpreted in the context of Horn’s theory, especially with the distinction between vulnerable and maintained abilities. Limitations and suggestions for future research are discussed.
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